Beginners Guide: Setting up a Dual Monitor Configuration + Helios + Cap Loz

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Author: **DerekM**

Revision History

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Draft A	First Draft	DerekM	31/05/2014

Contents

1 Introduction

In this guide, I go through all the steps needed to set-up a 'dual-stacked' monitor configuration, where the top monitor is the main sim screen, and the bottom monitor is a 'glass cockpit' touchscreen. The DCS module used in the guide is the A-10C Warthog. The set-up also runs the invaluable Helios application, loaded up with the popular Cap Loz profile, which accurately models the cockpit of the A-10C.

The monitors used are:

- Main Screen: 24" Dell U2414H IPS LED Monitor

- Touchscreen: 21.5" Dell S2240T inch Touchscreen Monitor

Figure 1 (next page) shows the initial set-up, with the 24" Dell in the background, and the 21.5" touchscreen the lower monitor in the foreground.

The DCS World version used in compiling this guide was 1.2.8, and Windows 7 Ultimate was the operating system. I'm also using the Steam installation of DCS. Other software used is:

- Helios (Build 1.3.190): http://www.gadrocsworkshop.com/helios/
- Cap Loz profile (Loz SM v2.1) : http://www.gadrocsworkshop.com/node/9
- Notepad++: http://notepad-plus-plus.org/
- WinRAR: http://www.rarlab.com/download.htm

Note that the guide only targets the DCS A-10C Warthog, although the steps may be useful for other DCS modules. Also, it should also be possible to use some of the information for other monitor layouts, but I only concentrate on the layout described above. Also for the Viewports in the last section, I considered using Easy Monitor Configurator by Icemaker, which looks like a superb utility, but in the end found a simpler solution (for this set-up), recommended by PeterP in this post.

Finally, I've also written another tutorial which may help in understanding the *Export.lua* file; this is available here: http://forums.eagle.ru/showthread.php?t=124921

1.1 Credits

The aim of this guide is to pull together all the work done by many other posters on the ED forums, and summarize in a single document the required steps to create such a layout. So I can't really claim that this is my original work. I've already mentioned Gadroc, Loz, PeterP and Icemaker above, but there are many other posts/posters from where/whom I extracted information... I can't remember everyone here so apologies if I've left anyone out.

1.2 Disclaimer

Just a word of warning- the steps I outline worked perfectly for me, but realistically you follow these steps at your own risk. Where necessary, always back up original versions of files before proceeding with something you're unsure of.
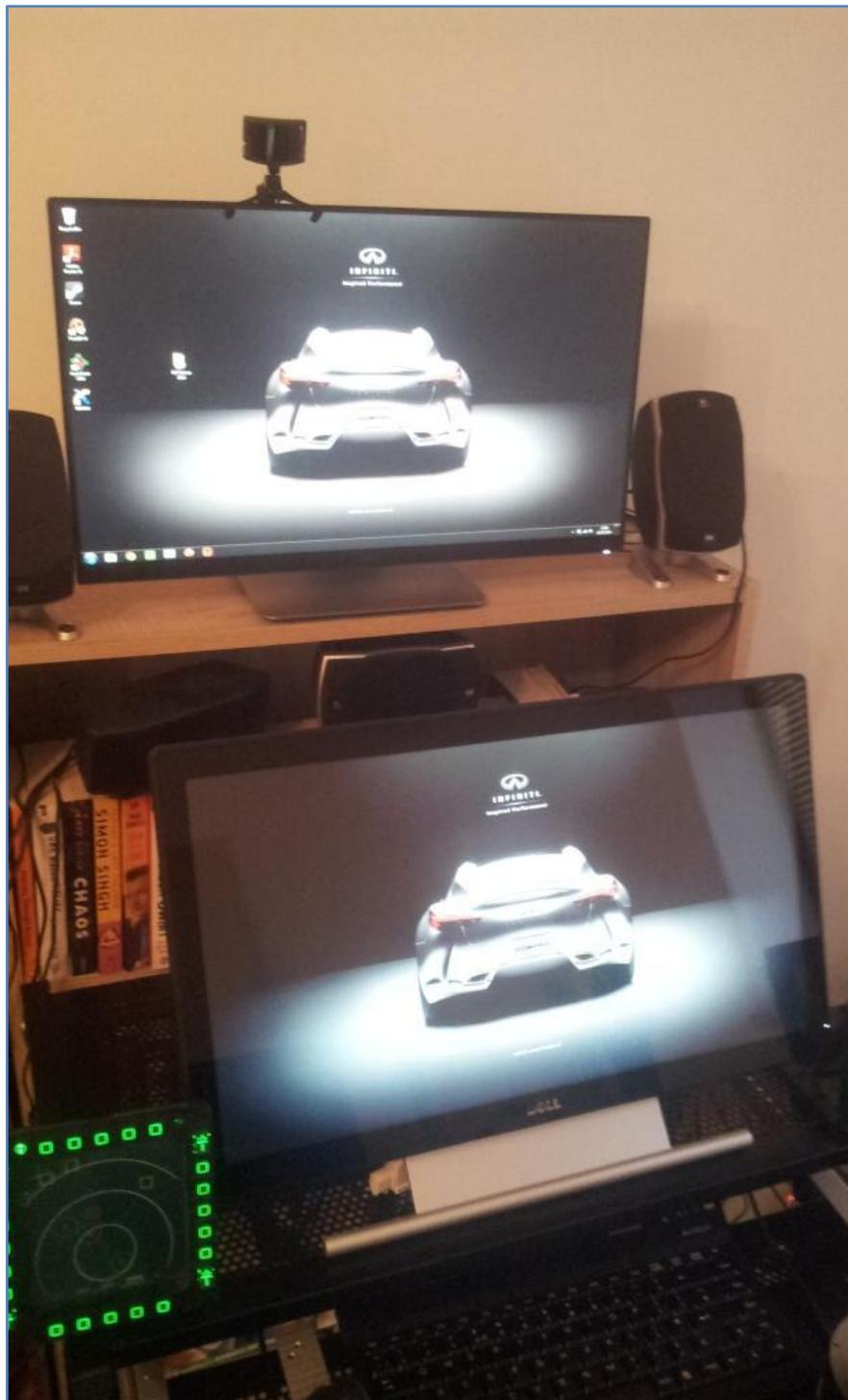
Figure 1. Initial Set-up

2 First Steps

2.1 Basic Monitor Configuration

The first step to take is to re-arrange the monitor configuration in Windows. Right-click anywhere on the desktop of either monitor, and select *Screen Resolution*. The dialog as shown in Figure 2 appears, with (usually) the monitors in a side-by-side layout. Of course your configuration may not be exactly like this, but in any case the aim is to re-arrange the monitors so that the main monitor is on top, and the touchscreen is on the bottom, as shown in Figure 3.
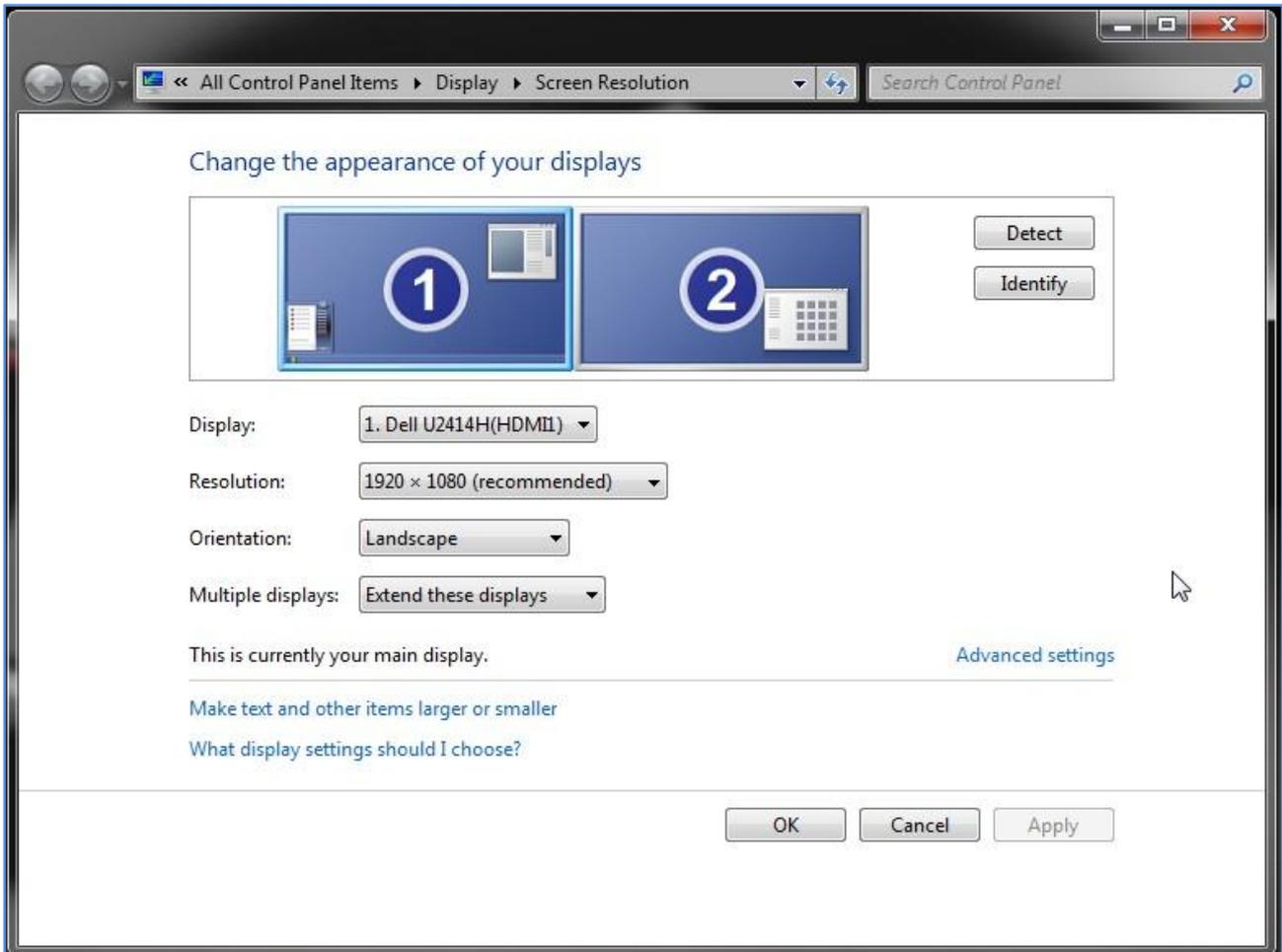

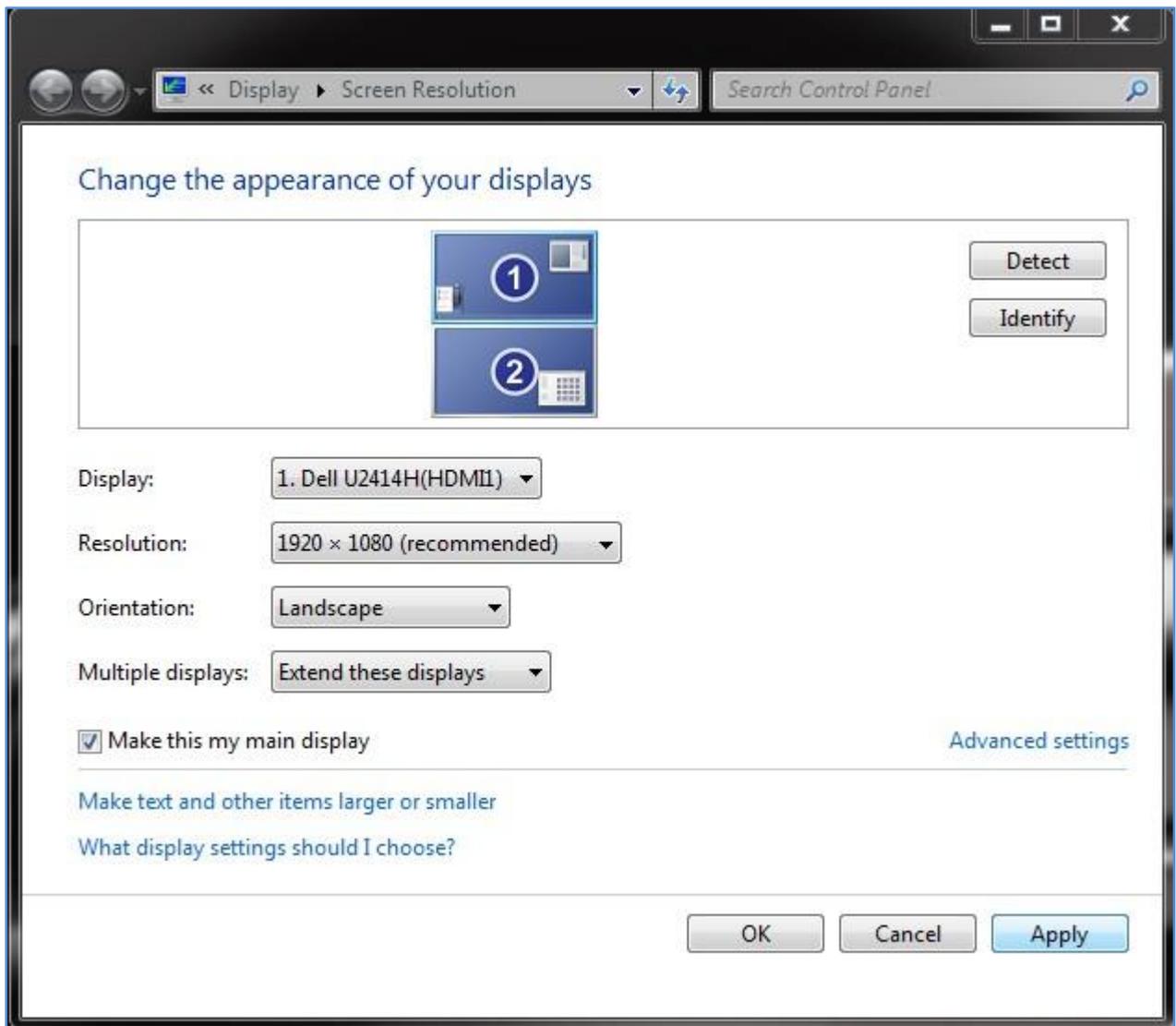**Figure 2. Original monitor layout (probable)**

Figure 3. Re-arrange monitor configuration

3 Install Helios

The next step is to install Helios. First, the application must be downloaded. This can be done by going to 'Gadroc's Workshop' and registering. Helios can then be accessed from (believe it or not) the "Helios" page and clicking on the *Download Now* button (Figure 4). [Also, although it's not really my place to say so, I do recommend donating if possible - this is an amazing application. The *Export.lua* file that it generates is worth its weight in gold alone, when you want to do more complex interfacing with DCS without Helios.]
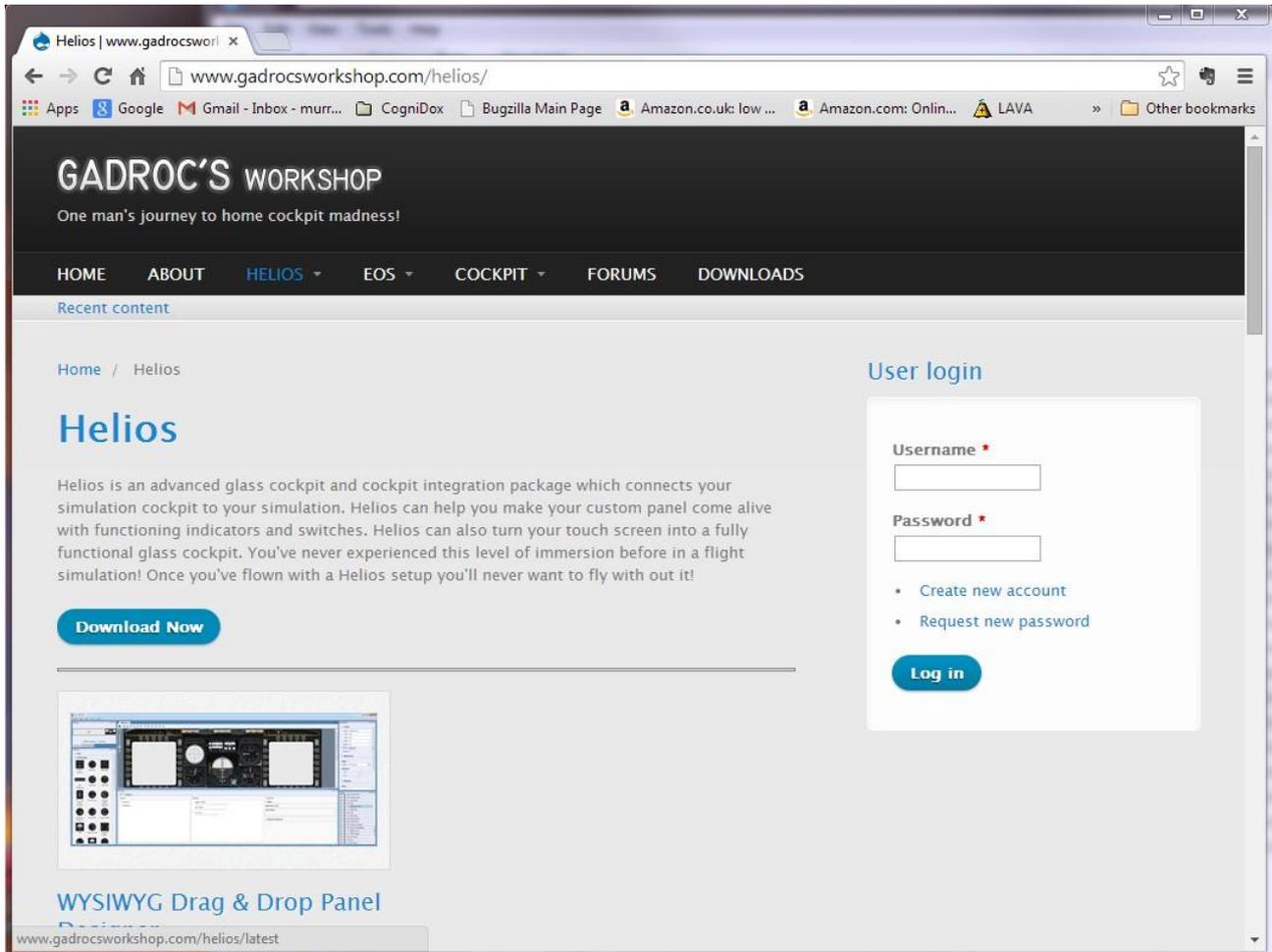

Figure 4. Click on Download Now on the Helios page

At the time of writing, the 1.3.190 build is the most up-to-date version, and has been for almost a year. Download the ZIP file that can be seen on the right of the page.
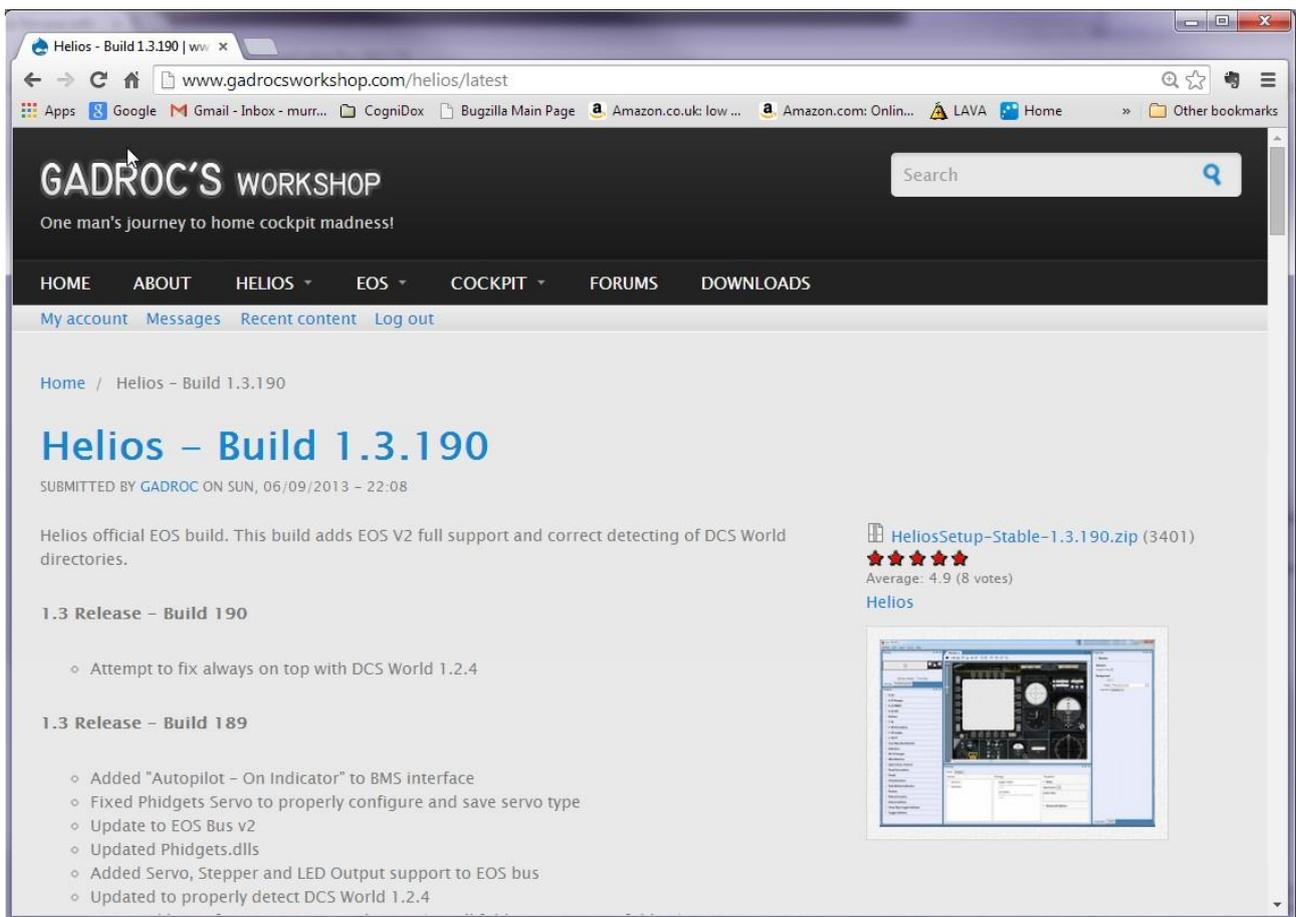

Figure 5. Build 1.3.190 - Download the ZIP file

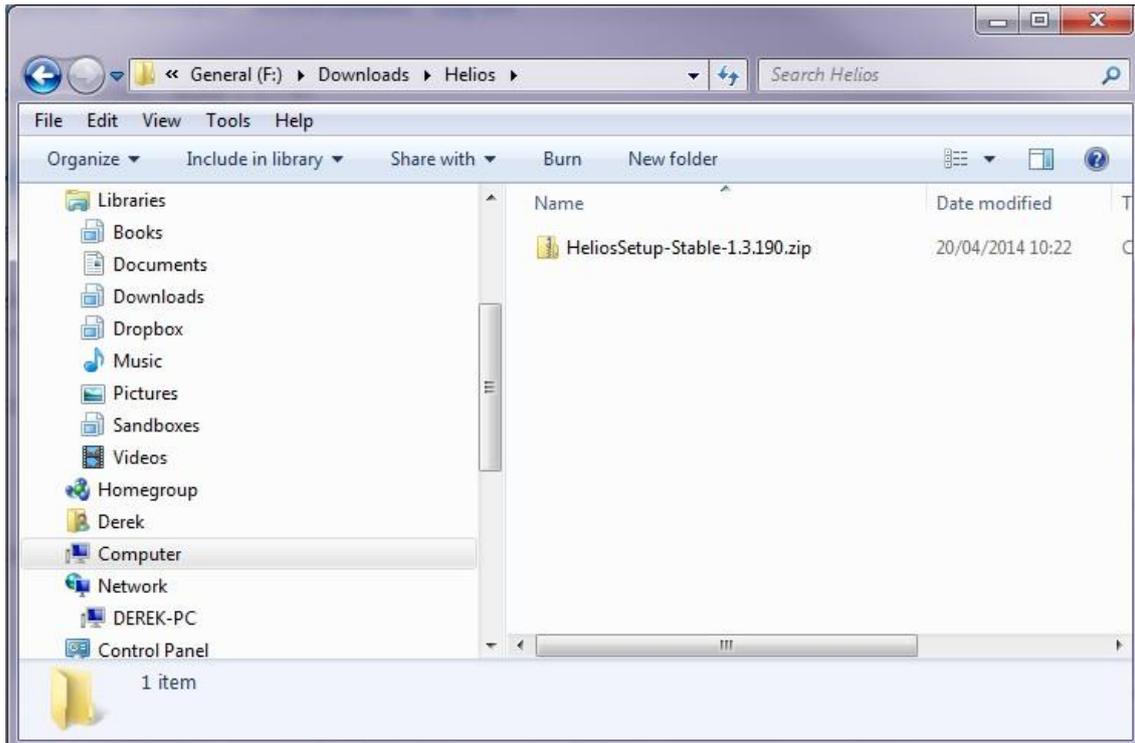Go to the download location and extract the file (Figure 6). Double-click on the installer to run it (Figure 7).

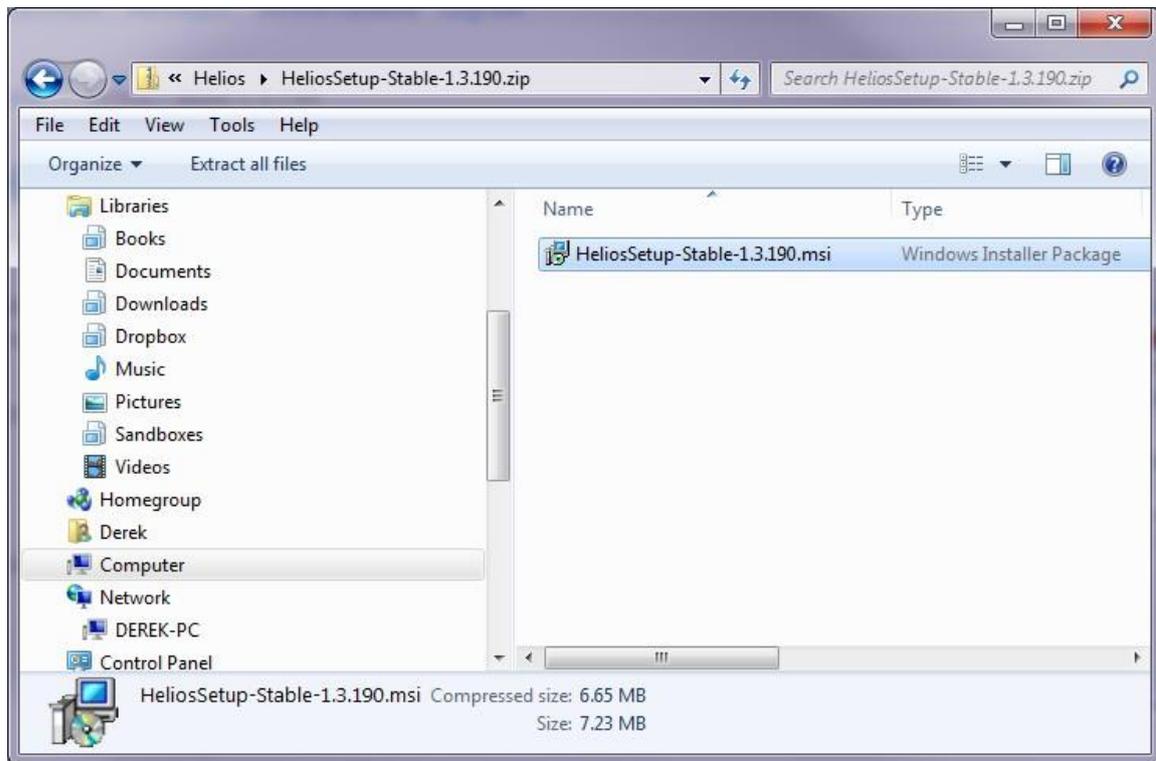**Figure 6. Find the ZIP file and extract the contents**

Figure 7. Double-click to run the installer

Accept the security warning if it appears, i.e. click on *Run* (Figure 8).

Figure 8. Accept the security warning

The Welcome dialog should appear. Click *Next* (Figure 9).

Figure 9. Welcome screen dialog

Accept the License Agreement (Figure 10).

Figure 10. Accept the License Agreement

At the Custom Setup dialog, there isn't any real reason to change anything, unless you really know what you're doing. The only option you may want to change is the install location; use the *Browse* button and change the path if desired. Once ready, click *Next* to continue (Figure 11).
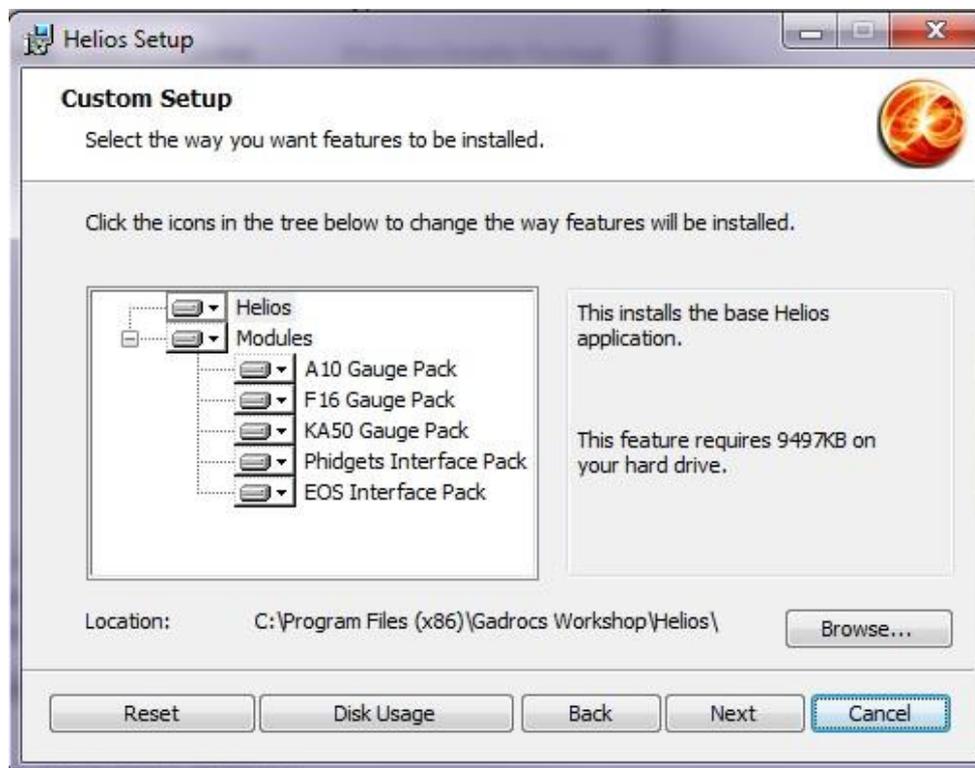

Figure 11. Custom Setup dialog
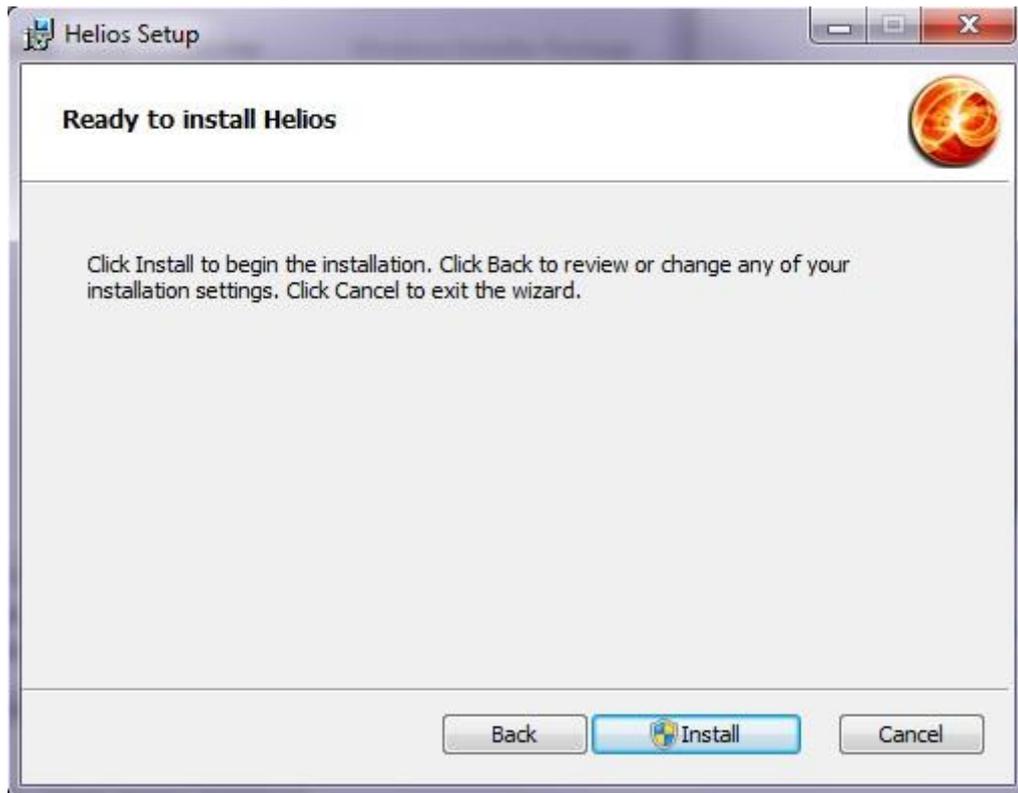
Click *Install* (Figure 12).

Figure 12. Click the Install button

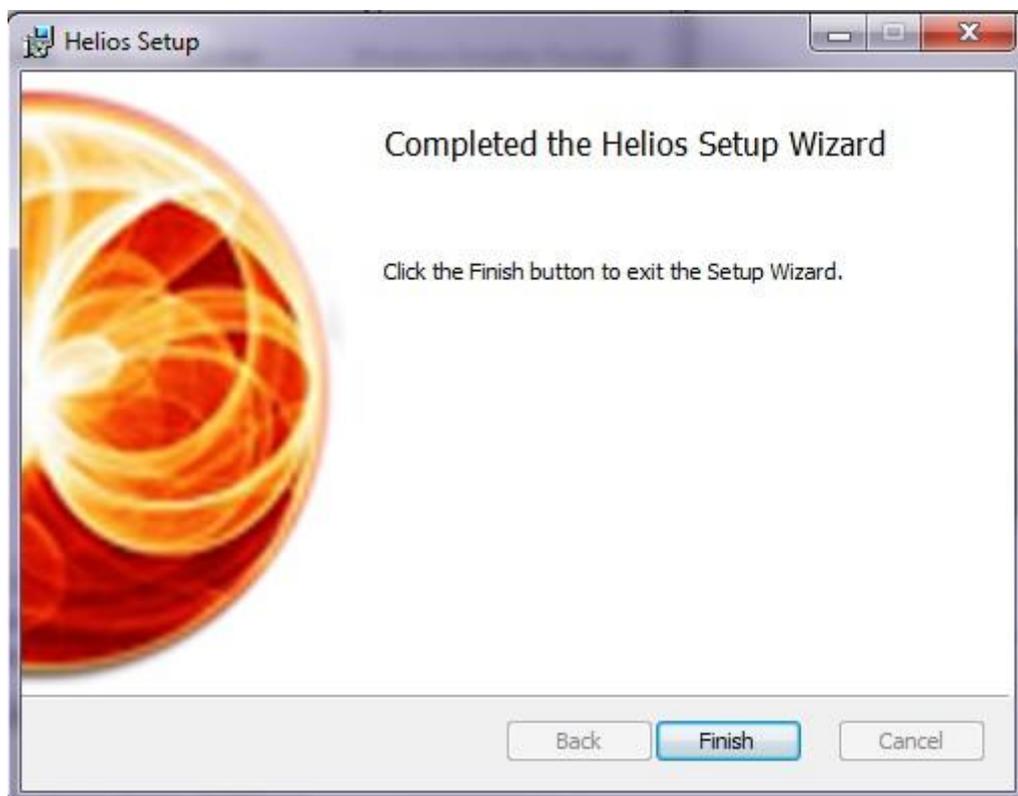Installation complete. Click *Finish* (Figure 13).

Figure 13. Installation complete

Next, run the Profile Editor by going to **Start -> All Programs - Gadroc's Workshop -> Profile Editor** (Figure 14).
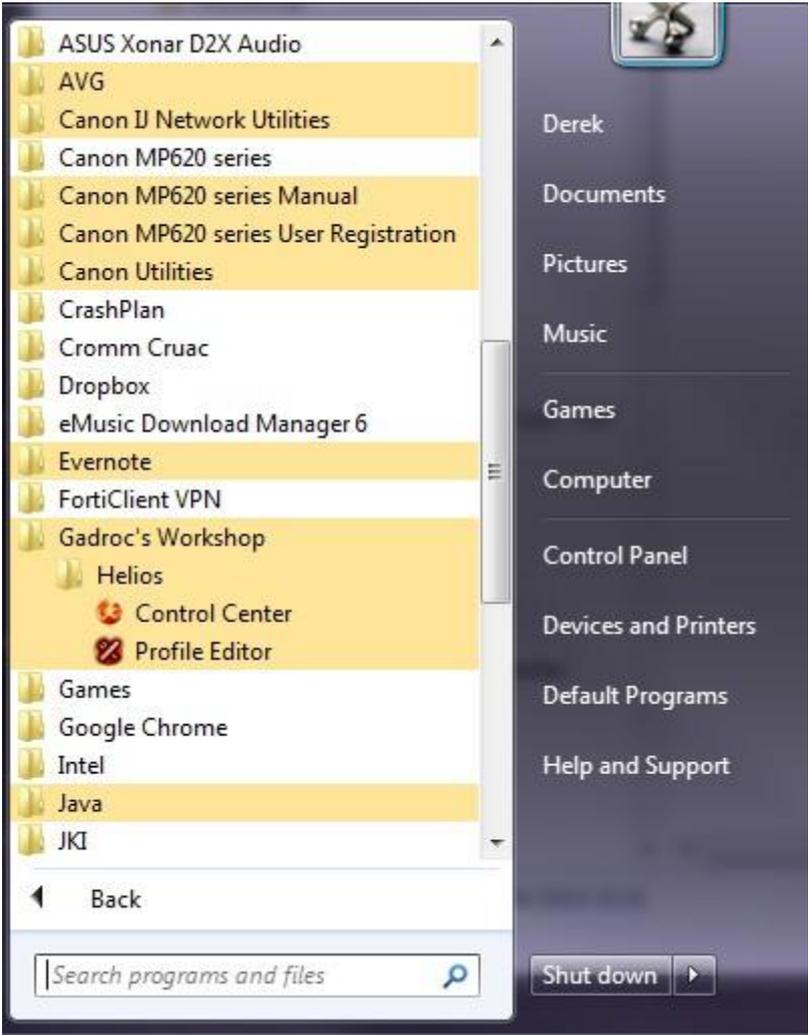

Figure 14. Run the Profile Editor

Figure 15 shows the Profile Editor on first launch.

Figure 15. Profile Editor on first launch

Note that the Preview tab should be displaying the correct monitor layout, just as it was configured at the very start of the tutorial (Figure 16).

Figure 16. Preview tab should show correct monitor layout

At this point, Helios is set up and ready to go. But rather than designing a custom layout, an alternative is to use one which is freely available on the Gadroc's Workshop site. This is covered in the next section.

4 Install a Helios Profile (Loz SM v2.1)

The next step is to install a pre-designed Helios profile. One which is commonly used, and which is perfect for our purposes, is the "Los SM V2.1" profile, which can be found here (Figure 17). (Credit here goes to Cap Loz who designed this excellent profile). Download the RAR file which can be seen on the right of the page.

Figure 17. Loz SM v2.1 profile

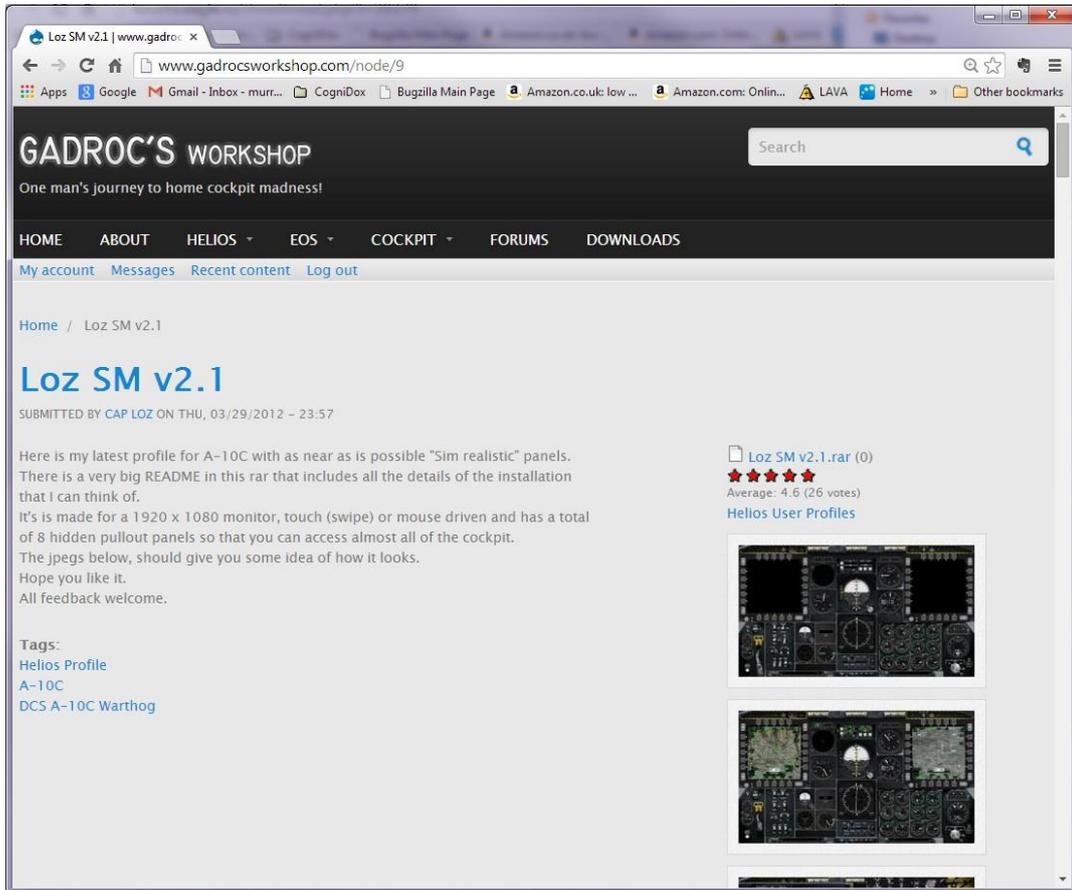Extract the RAR file (Figure 18). Note that you will need to install WinRAR to do this (if it's not already on your system). The extracted contents are shown in Figure 19. I suggest you have a read of the 'v2.1 Readme.txt' at this point as well.

Figure 18. Right-click and extract the RAR file contents

Figure 19. Loz profile directory contents

Next, the profile must be copied to the Helios profile directory. Usually this directory is at the following location: *C:\Users\YourName\Documents\Helios\Profiles*. Copy the "Loz SM V2.1.hpf" file (see last step) to this location (Figure 20).

Figure 20. Copy the Loz profile to the Helios Profiles directory

Next, images related to the Loz profile also need to be copied to Helios. The images to be copied are in the "Extract these Images" directory where the Loz profile was downloaded to (Figure 21).

Figure 21. Profile images to be copied

The images should be copied to the following folder: *C:\Users\YourName\Documents\Helios\Images* (Figure 22). Note that the full contents of the "Extract these Images" folder should be copied; that is, the sub-directories as well (Airport charts folder, etc).

Figure 22. Loz profile images copied for use by Helios

Everything should now be in place for Helios to use the profile. Rerun the Helios Profile Editor (refer back to Figure 14), and select *Profile -> Open* (Figure 23).

Figure 23. Run Profile Editor and select *Profile -> Open*

Select the Loz SM V2.1 profile and click *Open* (Figure 24).

Figure 24. Open the profile

When the profile loads, the first point to note is that the monitor layout will be wrong for our two-monitor stacked layout (Figure 25) i.e. it defaults to using the original layout used by Loz. The next step, then, is to rectify this.

Figure 25. Monitor layout will be wrong when profile is loaded

Click on *Profile -> Reset Monitors* (Figure 26).

Figure 26. Click on Profile -> Reset Monitors

The old layout will be on the left, and our dual monitor layout will be on the right (Figure 27). Click *OK*.

Figure 27. Desired layout should be displayed on the right

The correct layout should now appear in the Preview tab (Figure 28). Also, note that the gauges and panels should be on the bottom monitor.

Figure 28. Correct monitor layout in Preview tab

Note that at this point, Helios can be run completely independently to DCS World, and it will simply display the gauges/panels on the lower monitor. This is shown in Figure 29 below, where DCS is not running at all. In fact at the moment there is no way for DCS World to communicate with Helios; an *Export.lua* file must be generated to handle the interface between both applications, and we will do this next.

Figure 29. Helios running without DCS World

First, select the *Profile Explorer* tab (beside *Preview*), and double-click *DCS A10C*. This brings up the set-up screen as shown below (Figure 30).

Figure 30. Select Profile Explorer -> DCS A10C

The Properties options can be left at their defaults. In fact, the only change required is to point Helios to the correct installation path (the problem is indicated by the red text *Can not find game install* in Figure 30). The easiest way to get the install path is to go to the installation folder e.g.
..*\steam\SteamApps\common\DCSWorld,* right-click in the address bar, and click *Copy* (see below).

Figure 31. Find the install location

Go back to Helios and paste in the copied location (Figure 32):

Figure 32. Paste the copied install location

The red error text should disappear, and the next step is to click on the *Setup DCS A-10C* button. This should create the required Export.lua file. (Note: don't click the *Reset* button, or you will have to repeat the steps!).

Figure 33. Click Setup DCS A10C

The dialog below will appear if the file is created; click *OK* to continue:

Figure 34. Dialog should appear if Export.lua is created

The Export.lua file can be found in the following location, assuming you have a Steam install (Figure 35):
..\steam\SteamApps\common\DCSWorld\Config\Export

Figure 35. Location of Export.lua file after it is generated by Helios

This needs to be copied to the user area as shown below (Figure 36). Note also that it will be necessary to create the Scripts folder if it does not exist: *C:\Users\YourName\Saved Games\DCS\Scripts*

Figure 36. Copy the Export.lua file to the user area Scripts folder (create folder if necessary)

Note that this is the last step required to set up Helios for now, although more configuration in the DCS installation area will be required later. At this point, however, the touchscreen monitor also needs some configuration, and that will be described in the next section.

5   Configure the Touchscreen Monitor

Before running the sim, the touch screen monitor also needs to be correctly configured. The steps in this section simply elaborate on what is already described on this page in Gadroc's Workshop, so please also refer to that page.
The first step is open the Control Panel in Windows, and select Tablet PC Settings (Figure 37).

Figure 37. Select Tablet PC Settings in Control Panel

In the dialog below (Figure 38) make sure that *Display* is set to the touchscreen monitor, and then click *Setup*. A white screen should appear, prompting you to select the touchscreen correctly - simply follow the instructions as prompted. When complete, click the *Other* tab.

Figure 38. Tablet PC Settings

On the Other tab, select *Go to Input Panel Settings* (Figure 39).

Figure 39. Select Go to Input Panel Settings

Uncheck the *Use the Input Panel Tab* (Figure 40). Click Apply/OK.

Figure 40. Uncheck the 'Use the Input Panel Tab'

Go back to the Control Panel, and next select *Pen and Touch* (Figure 41).

Figure 41. Select Pen and Touch in the Control Panel

Select *Press and Hold* under *Pen Action*, and click on *Settings* (Figure 42).

Figure 42. Pen and Touch Settings

Uncheck *Enable press and hold for right-clicking* (Figure 43), and click *OK*.

Figure 43. Press and Hold Settings

Select the *Flicks* tab, and uncheck *Use flicks to perform common actions quickly and easily* (Figure 44).
Optional: Uncheck *Display flicks icon in the notification area*.

Figure 44. Flicks Settings

Switch to the *Touch* tab, select *Press and Hold*, and click *Settings* (Figure 45).

Figure 45. Touch tab

Uncheck *Enable press and hold for right-clicking* (Figure 46). Note that this is the last required change. Press *OK* until these set-up dialogs are closed.

Figure 46. Uncheck Enable press and hold for right-clicking

6 Configure Viewports

At this point, Helios is set up to use the Loz profile, an Export.lua has been created and saved in the correct location, and the touchscreen monitor has been configured correctly. If you want to, you can even run Helios + Cap Loz with DCS A-10C at this stage, and you should see the gauges moving on your touchscreen. To try this out, in Windows go to **Start -> All Programs - Gadroc's Workshop -> Control Center**, and the Helios Control Center should start (Figure 47). The Cap Loz profile should also be clearly available (*Loz SM V2.1*). Click on *START* to run the profile (figure 48). The cockpit should appear on your touchscreen monitor (note: not shown here, but it should look exactly like in Figure 29 previously).

Figure 47. Run the Helios Control Center

Figure 48. Click START to run the Loz profile

Next, start up DCS A-10C, and go to *Options -> System*. If your current monitor configuration isn't as below in Figure 50, then change the settings as follows:

- Resolution: 1920x1080
- Aspect Ratio: 1.777777778
- Monitors: 1 Screen

Figure 49. Run the Navigation training mission

Exit out of the Options menu and run a training mission, for example the Navigation mission (Figure 50). When the mission starts, the gauges on the touchscreen should all quickly move and align with the gauges in the in-game cockpit. Also, you should be able to move the toggle switches (for example) by touch, or using the mouse.

However, you will straight away notice a serious flaw- the MFCDs and numerous other display elements are missing (RWR, CMSP, etc). The aim in this section, then, is to set-up 'view-ports' to display the missing components correctly.

Figure 50. Run the Navigation training mission

To see what we need to achieve, first consider the diagrams in Figure 51 and Figure 52 on the following pages. First of all, the top monitor is the main screen, and the lower one is the touchscreen, but for our purposes we can consider that they are a single screen with a combined resolution of 1920x2160 (pixels). In this way, the top-left-hand corner of our 'screen' is the zero reference point of (x = 0, y = 0). The 2160 figure is obtained by adding the vertical resolution (1080px) of both monitors. Note that if you were using monitors with different resolutions, you would end up with a different combined size, but these figures are obviously correct for this system.

The missing indicators are also shown in both figures. In Figure 51, the exact placement of each component is given in x,y pixel terms, using the top-left-hand corner of each part as the reference point. So for example, the left MFCD is located 60 pixels from the left and 1200 pixels from the top of our dual screens.

Figure 52 is a similar to Figure 51, but in this case the size of each component is given, again in pixels.

The aim now is to create a monitor configuration file which stores both the location and dimension coordinates.

[Something else to point out at this stage is that some of the indicators are not immediately visible in the Loz profile, namely the CMSP, UHF_PRESET_CHANNEL, and UHF_ FREQUENCY_STATUS indicators (see the different color coding in the figures). These can be made visible by pressing on different parts of the layout when the sim is running; refer to the readme file that was downloaded with the Loz profile for more details.]

(x = 0, y = 0)   (x = 1920, y = 0)

**Main Sim Monitor
+ DCS GUI**

(x = 0, y = 1080)   **(600, 1241)**   **(856, 1221)**   **CMSP
(1074, 1270)**   (x = 1920, y = 1080)

(60, 1200)   **CMSC**   **(1415, 1200)**

                              RWR   **CMSP**

LMFCD   **RMFCD**

                          (748, 1557)
                                              UHF_PRESET_CHANNEL
                              p

                          U_FREQ   UHF_FREQUENCY_STATUS

(635, 1645)

(656, 1775)   **U_rep**

(480, 1910)   UHF_REPEATER

                    **DIGIT
                    CLOCK**   **Touch-screen
                                         (Helios + Loz
                                         Profile)**

(x = 0, y = 2160)   (x = 1920, y = 2160)

Figure 51. Desired indicator location

Figure 52. Desired indicator size

So where to start? There is a lot of information on how to this, but the easiest solution I found was by using files uploaded by Peter in this thread:
Post: http://forums.eagle.ru/showpost.php?p=1541311&postcount=68
RAR file: http://forums.eagle.ru/attachment.php?attachmentid=86857&d=1377958574

Note that I strongly considered using Easy Monitor Configurator by Icemaker which looks like a very good solution, but in the end I didn't need it. In any case, doing it using the methods described in the following pages mean that it is easier to make any changes yourself in the future, should a DCS World update mess up your layout.

So next, when the RAR file is downloaded, extract the files in the post (Figure 53):

Figure 53. Extract files

There are several options available in this package, but in my case I just want the 'A10C installed' option. Also, you can make a choice of leaving the MFCD's in the in-game cockpit on or off; I decided to leave the MFCDs on. If you need different options to what I have chosen, the steps in the following pages may still be broadly applicable, but my suggestion is to consider everything you do carefully.

The next step, then, is to create a new monitor configuration Lua file. Navigate to the location where the above files were extracted to, i.e.
..\A10C installed\1. MFCDs in Cockpit ON\DCS World\Config\MonitorSetup and use Notepad++ to open the file *Export example.lua* (Figure 54). We will use this as a base to create the new file.

Figure 54. Open 'Export example.lua'

Figure 55 shows the opened file. The first steps to tidy this up for our purposes are as follows (starting at the lower end of the file):

- Delete the references to the KA50 in lines 172 to 224. Note: There will probably not be any issues if you leave these lines in, but I deleted them anyway.
- Delete the block of code related to the CDU (lines 109-115), as it is not exported in the Cap Loz profile. (Note: if you're using this document as a reference in a set-up that *does* require the CDU, then obviously you retain these lines!)
- Delete the comments in lines 5 to 63.

This just leaves a file which targets the A-10C, which can be seen in Appendix A-1. I'll also elaborate on the code in the following pages.

Note that I recommend that you edit the PeterP file directly in Notepad++ rather than just copying-and-pasting the code in the appendix; I've simply included it in this document as a reference.

Figure 55. Original contents in *Export example.lua*

Lines 1-3

```
_   = function(p) return p; end;
name = _('24inMain_22inTouch');
Description = '2 Monitor Config, 24in Main + 22in Touch, both 1920x1080'
```

Line 1 should be left untouched. In line 2, we just add a suitable name for our configuration; note that this will appear in the DCS monitor options when we run the sim. In line 3, you can just add a suitable description, although this is not really critical.

Lines 4-16

```
{
    Center =
    {      -- Main screen (top monitor), 1920x1080 resolution
        x = 0;
        y = 0;
        width = 1920;
        height = 1080;
        viewDx = 0;
        viewDy = 0;
        aspect = 1.7777778;
    }
}
```

Here we define the main game view on the top monitor. Referring back to Figure 51, we see that the (x,y) coordinates are (0,0), and the width and height are the 1920x1080 i.e. the actual monitor resolution. The last parameter, called 'aspect', refers to the monitor aspect ratio i.e. 1920/1080 = 1.7777778. [The two other parameters, viewDx and viewDy - I'm not sure what they do, but in our configuration they are just left at (0,0).]

Lines 18-26

```
    GUI=
    {      -- GUI just on main screen
        x = 0;
        y = 0;
        width = 1920;
        height = 1080;
    }

UIMainView = GUI
```

In these lines we also just set the game GUI to appear on the top monitor.

The code past this point sets the location of each component on the touchscreen. I've arrived at these figures by looking through the monitor configuration file downloaded with the Cap Loz profile and recalculating for my layout, and then tweaking where necessary. I'll quickly run through each block now, but when you can understand the placement of one component, the rest are also easy to understand. Note that the names of each module e.g. ED_A10C_LEFT_MFCD should be left as they are, as they will be referenced in some other files we will use later in this section.

Lines 32-38

```
ED_A10C_LEFT_MFCD =
    { -- Touch screen (bottom monitor), top-right corner
        x = 60;
        y = 1200;
        width = 445;
        height = 445;
    }
```

Sets the left MFCD location to x = 60, y = 1200, with dimensions of 445x445.

Lines 40-46

```
ED_A10C_RIGHT_MFCD =
    { -- Touch screen (bottom monitor), top-left corner
        x = 1415;
        y = 1200;
        width = 445;
        height = 445;
    }
```

Sets the left MFCD location to x = 1415, y = 1200, with dimensions of 445x445.

Lines 48-54

```
ED_A10C_CLOCK =
    {       -- helios default = visible
        x = 480;
        y = 1910;
        width = 122;
        height = 122;
    }
```

Sets the digital clock location to x = 480, y = 1910, with dimensions of 122x122.

Lines 56-62

```
ED_A10C_RWR =
    {       -- helios default = visible
        x = 600;
        y = 1241;
        width = 175;
        height = 175;
    }
```
Sets the RWR location to x = 600, y = 1241, with dimensions of 175x175.

Lines 64-70

```
ED_A10C_CMSP =
    {       -- helios default = hidden
        x = 1075;
        y = 1270;
        width = 270;
        height = 70;
    }
```

Sets the CMSP location to x = 1075, y = 1270, with dimensions of 270x70.

Lines 72-78

```
ED_A10C_CMSC =
    {       -- helios default = visible
        x = 856;
        y = 1221;
        width = 230;
        height = 49;
    }
```

Sets the CMSC location to x = 856, y = 1221, with dimensions of 230x49.

Lines 80-86

```
ED_A10C_UHF_FREQUENCY_STATUS =
    {       -- helios default = hidden
        x = 635;
        y = 1645;
        width = 120;
        height = 30;
    }
```

Sets the UHF Frequency location to x = 635, y = 1645, with dimensions of 120x30.

Lines 88-94

```
ED_A10C_UHF_PRESET_CHANNEL =
        {          -- helios default = hidden
               x = 748;
               y = 1557;
               width = 30;
               height = 30;
        }
```

Sets the UHF radio preset channel location to x = 748, y = 1557, with dimensions of 30x30.

Lines 96-102

```
ED_A10C_UHF_REPEATER =
        {          -- helios default = visible
               x = 656;
               y = 1775;
               width = 110;
               height = 30;
        }
```

Sets the UHF radio repeater location to x = 656, y = 1775, with dimensions of 110x30.

Once you're happy with the changes, save the file to the following location in the DCS World install area: *(..\steam\SteamApps\common\DCSWorld\Config\MonitorSetup)*.
Choose a suitable name e.g. "24inMain_22inTouch_1920_2160.lua", see Figure 56.
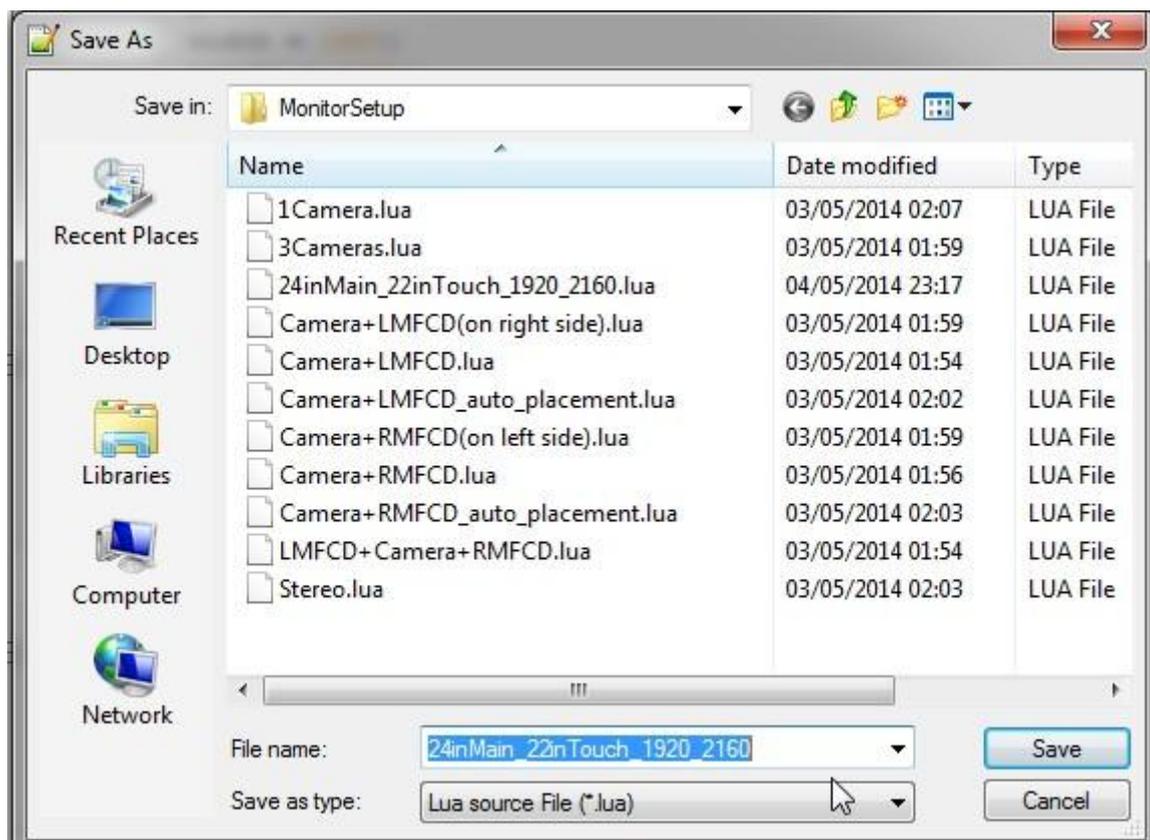

Figure 56. Select 'Save As' and choose a suitable name

At this point we're almost there, but there are some final files which need to be modified in (or copied to) the DCS World installation. Before doing this, I recommend that you back up some original versions of files in your installation. First, back up *'ViewportHandling.lua'*:

..\steam\SteamApps\common\DCSWorld\Scripts\Aircrafts_Common\Cockpit\ViewportHandling.lua

Next there are a series of '**_init.lua*' files which should be backed up. The base directory is:

..\steam\SteamApps\common\DCSWorld\Mods\aircrafts\A-10C \Cockpit\Scripts

From there, you will see directories containing lua files for all the panels/gauges in the sim. You should navigate down through the folders and back up the following files:

.\AN_ALR69V\indicator\AN_ALR69V_init.lua
.\CMSC\indicator\CMSC_init.lua
.\CMSP\indicator\CMSP_init.lua
.\DigitalClock\indicator\DIGIT_CLK_init.lua
.\MFCD\indicator\MFCD _init.lua
.\UHF_Radio\indicator\freq_status_init.lua
.\UHF_Radio\indicator\preset_channel_init.lua
.\UHF_Radio\indicator\repeater_init.lua

Note again that I've ignored the CDU file; if you need the CDU in your (non-Loz) set-up then you need to repeat the steps for that as well.

Once the files above are backed up, the next steps are easy, particularly for the nine 'init' files above (the *ViewportHandling.lua* file will be dealt with separately below). Simply find the equivalent files in the PeterP RAR file contents, and copy them to folders as listed above, overwriting the original files. In PeterP's RAR file, the directory for the init files is. As mentioned, find the files and copy them across:
..\A10C installed\1. MFCDs in Cockpit ON\DCS World\Mods\aircrafts\A-10C\Cockpit\Scripts

I deal with *ViewportHandling.lua* slightly differently, as simply overwriting the file in DCS version 1.2.8 does not work. Instead, find the file in the PeterP RAR contents and open it in Notepad++. It can be found here:
..\A10C installed\1. MFCDs in Cockpit ON\DCS World\Scripts\Aircrafts_Common\Cockpit

Also open the original DCS World *ViewportHandling.lua* file in Notepad++ (path already listed above). In the original file, the last block of code is as shown in Figure 57. The equivalent code in PeterP's file is as shown in Figure 58. Simply copy the code in PeterP's file and overwrite the code in the original file using it.

Note that the method detailed above was valid in DCS version 1.2.8. This does not guarantee that it will work in future versions; some (or all) steps may need to be modified. If there are issues, then I recommend opening each version of file in Notepad++ (PeterP's version and the DCS install version). Compare them both and work out what you need to copy across from the PeterP version. Hopefully this will solve any issues.

```
72      -- try to find assigned viewport
73    function try_find_assigned_viewport(exactly_name,abstract_name)
74         local viewport  = find_viewport(exactly_name) or
75                           find_viewport(abstract_name)
76         if viewport then
77            set_full_viewport_coverage(viewport)
78         end
79    end
```

Figure 57. Original code in ViewportHandling.lua

```
64     -- try to find assigned viewport
65    function try_find_assigned_viewport(exactly_name,abstract_name)
66         local multimonitor_setup_name =  "Config/MonitorSetup/"..get_multimonitor_preset_name()..
           ".lua"
67         local f = loadfile(multimonitor_setup_name)
68         if    f     then
69            local env = {screen = LockOn_Options.screen}
70            setfenv(f,env)
71            pcall(f)
72            local target_env = env[exactly_name]
73            if not target_env and abstract_name then
74               target_env = env[abstract_name]
75            end
76            if target_env then
77               set_full_viewport_coverage(target_env)
78            end
79         end
80    end
```

Figure 58. PeterP code to copy to ViewportHandling.lua

Note that if you want to be really fussy at this point, there is one final change you can make in the '*_init.lua' files. In each file, there is a *dbg_print* line which is used to write to the dcs.log file:

```
dbg_print = ("ok we have directly assigned viewport to MFCD\n")
```

You should go through each file and assign the module correctly; the example in Figure 59 is for the digital clock ("*DIGIT_CLOCK*").

```
58        if vp ~= nil then
59           dbg_print("ok we have directly assigned viewport to DIGIT_CLK\n")
60           set_full_viewport_coverage(vp)
61        end
62    end
```

Figure 59. Change the module in the 'dbg_print' line

And so, once you get to this point with no problems, you're ready to fire up the sim. First, run the Cap Loz profile again (refer back to Figure 47 and Figure 48).

Next, run DCS World, make sure you're using the A-10C module, and go to the Options screen (Figure 60). Four changes are needed on this screen:

- Under Monitors, the name you defined in your monitor configuration Lua file should be available. In my case, that is "24inMain_22inTouch".
- Under Resolution, there should be a 1920x2160 option available.
- The Aspect Ratio setting should change automatically to '0.8888888888889' when you set the resolution; if not you should type the value in yourself. Note that this is the ratio of the combined monitors i.e. 1920/2160.
- Also, not shown here, you should uncheck the 'Full Screen' option to the right of these settings. As far as I know, leaving this option checked will cause the simulation to crash in multi-monitor mode.

Figure 60. Change options to correct settings
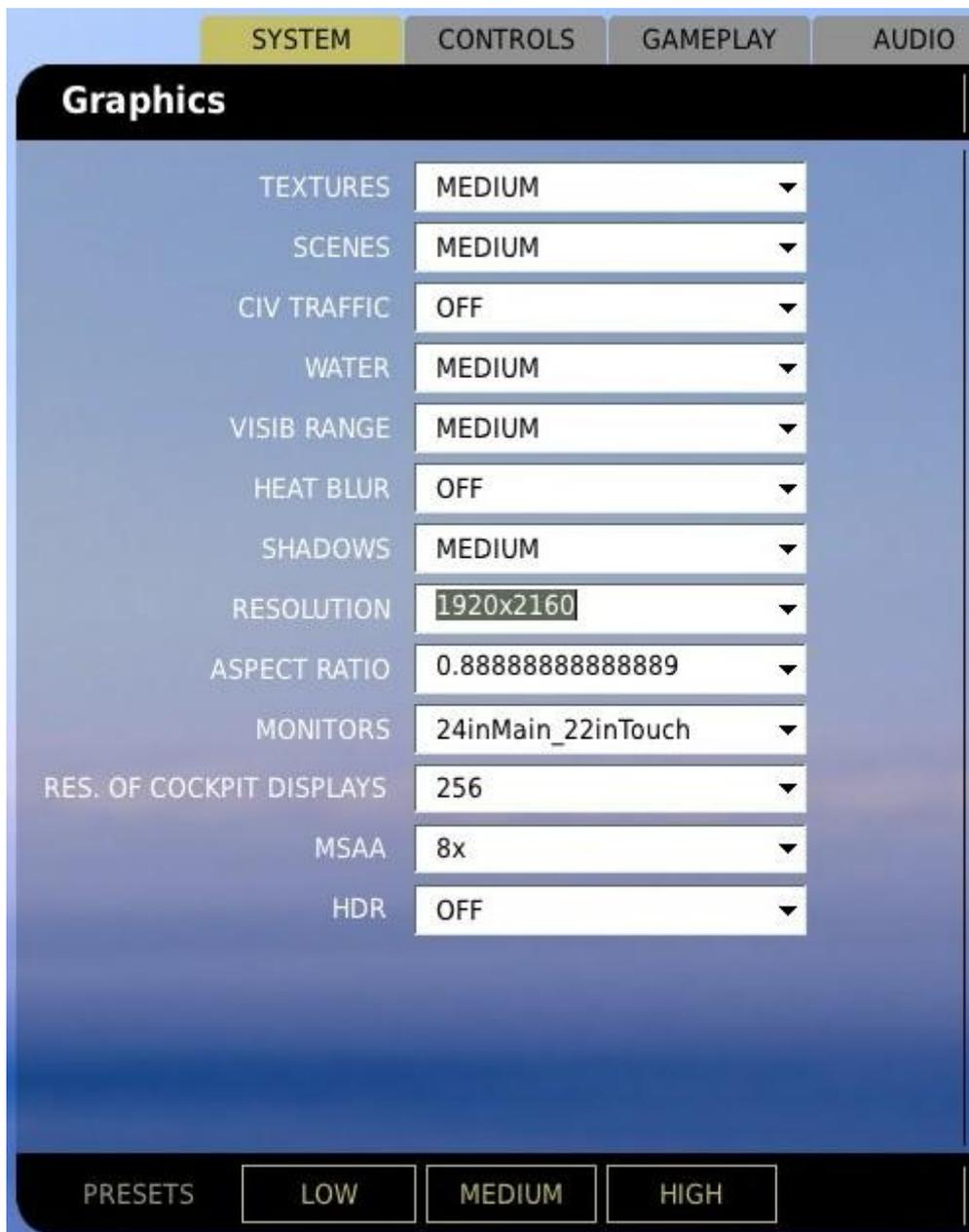
And that should be that. Re-run the Navigation mission, and once it starts up, the Viewports we configured above should be displayed correctly, gauges should be synced up, and toggle switches should be toggle-able (if that's a word!). To conclude, the captures below show the finished set-up.

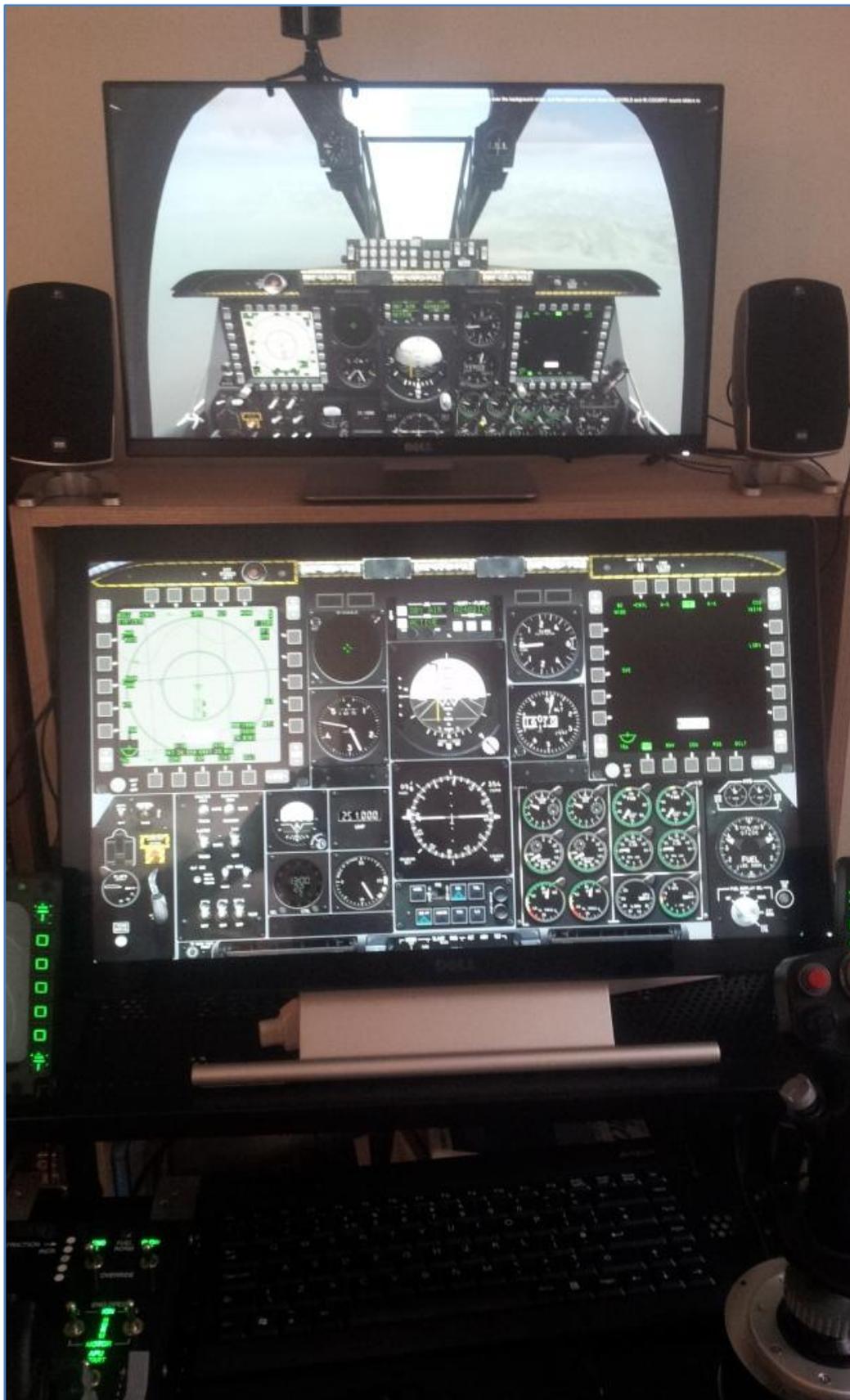**Figure 61. Helios + Loz profile on touchscreen**

Figure 62. Complete set-up

Appendix A-1 : Monitor Configuration Lua

```lua
_   = function(p) return p; end;
name = _('24inMain_22inTouch');
Description = '2 Monitor Config, 24in Main + 22in Touch, both 1920x1080'
Viewports =
{
    Center =
    {       -- Main screen (top monitor), 1920x1080 resolution
        x = 0;
        y = 0;
        width = 1920;
        height = 1080;
        viewDx = 0;
        viewDy = 0;
        aspect = 1.7777778;
    }
}

    GUI=
    {       -- GUI just on main screen
        x = 0;
        y = 0;
        width = 1920;
        height = 1080;
    }

UIMainView = GUI

--//////////////////////////////////
--     Eagle Dynamics A-10C =
--//////////////////////////////////

ED_A10C_LEFT_MFCD =
    { -- Touch screen (bottom monitor), top-right corner
        x = 60;
        y = 1200;
        width = 445;
        height = 445;
    }

ED_A10C_RIGHT_MFCD =
    { -- Touch screen (bottom monitor), top-left corner
        x = 1415;
        y = 1200;
        width = 445;
        height = 445;
    }

ED_A10C_CLOCK =
    {       -- helios default = visible
        x = 480;
        y = 1910;
        width = 122;
        height = 122;
    }

ED_A10C_RWR =
    {       -- helios default = visible
        x = 600;
        y = 1241;
        width = 175;
        height = 175;
    }

ED_A10C_CMSP =
    {       -- helios default = hidden
        x = 1075;
        y = 1270;
        width = 270;
        height = 70;
    }

ED_A10C_CMSP =
    {       -- helios default = hidden
        x = 1075;
        y = 1270;
        width = 270;
        height = 70;
```

```
        }

ED_A10C_CMSC =
        {        -- helios default = visible
                x = 856;
                y = 1221;
                width = 230;
                height = 49;
        }


ED_A10C_UHF_FREQUENCY_STATUS =
        {        -- helios default = hidden
                x = 635;
                y = 1645;
                width = 120;
                height = 30;
        }

ED_A10C_UHF_PRESET_CHANNEL =
        {        -- helios default = hidden
                x = 748;
                y = 1557;
                width = 30;
                height = 30;
        }

ED_A10C_UHF_REPEATER =
        {        -- helios default = visible
                x = 656;
                y = 1775;
                width = 110;
                height = 30;
        }
```