Dummies Guide for the “MonitorSetup.lua“ and placing/positioning different view-ports 1.0.1

1. Overview

2. The “Monitor Setup Lua” file

2.1 The “Center” View-port

2.2 The “MFCD” View-ports

3. The “MFCD” View-ports at a second monitor

3.1 Two Monitors with same resolution

3.2 Two Monitors with different resolution

4. Link-list for known bugs and the workarounds

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1. Overview

To keep it simple at the beginning, we will start with a Singel-Monitor setting to place the default available view-ports.

For the A-10C = Right/Left MFCD
For the Ka-50 = Abris/Shkval

Later on in this document we will head to examples using more than one monitor and view-ports of non-default available avionic displays similar like this:

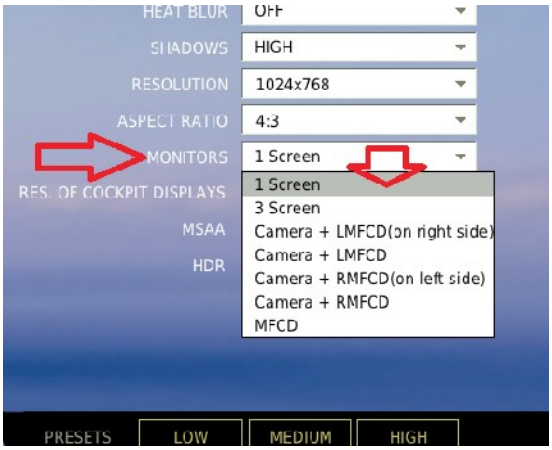
But first lets talk about the basics.

Let's assume you just installed DCS and after a little familiarization you may realize that it would be nice to have the MFCDs/Abris/Shkval or whatever a little bigger and always visible on your screen while inside the cockpit, similar to the “Hud Only View” [Alt+F1]....

So what do you need to know to get this on your cockpit view?...

You probably have noticed that the Options>System screen has a setting called “Monitors” and a pres-set of different setting you can choose from the drop-down menu.

Lets have a closer look at this:



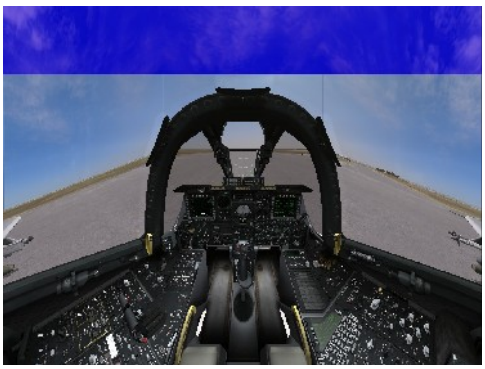
One important notice ahead:

Don't let you fool of the misleading naming "Monitors".
DCS knows nothing about how many monitors you have attached –
DCS only orientates on your overall in-game resolution and divides this space to position the outputs on it.
And I will from now on only talk about "view-ports" instead of monitors.

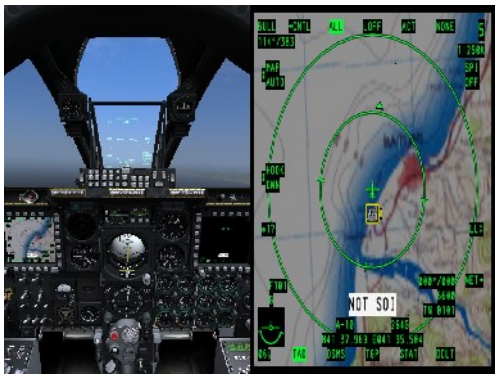
As you can see there are at default seven different settings. I show you now how some of them look when using a 1024x768 in-game resolution with the [F1] cockpit view (your appearance my vary on different resolution/aspect-ratio – especially this "royal-blue" sky bug – when using aspects smaller than 1 for a single camera-view-port – just ignore this for the moment):

1 Screen

3 Screen



Camera + LMFCD(on right side)



MFCD

So we see that it is possible to let the MFCDs always be visible, but this is not quit what we are looking for – remember: we want to have the R/L MFCD on our screen always visible , but keeping the cockpit at the greatest possible size.

So let's have a look what the documentation (and I'm sure you already read it!!!) says abut it:

e.g. A-10 GUI Manual , page 16:

MONITORS. The game allows you to output video to multiple monitors. Four default configurations are provided automatically:

- 1 Screen. All video will be displayed on a single monitor (default).
- 3 Screen. Video will be split equally over three monitors.
- Camera + RMFCD. Video will be split between 2 monitors - one for the main camera and one for the right MFCD.
- MFCD. Video will be split between 3 monitors - one for the main camera, one for the left MFCD and one for the right MFCD.

To customize these configurations or create your own new configurations, navigate to *\Config\MonitorSetup*. Each configuration is defined by a separate lua file.

That's all – nothing more...

But this is a very meaningful sentence:

To customize these configurations or create your own new configurations, navigate to \Config\MonitorSetup. Each configuration is defined by a separate lua file.

So it should be possible for us to reach our goal like in this picture below.

Our Goal and first practice:

2.The “Monitor Setup Lua” file

Some preparation:
Before we start to edit our own “Monitor Setup Lua” I want you to make some preparation and download a proper file-editor.
Do this to get a pleasing graphical output that will help you to have always a overview and to prevent corrupting this file.
Because every single line/point or comma is important for a proper function, and doing only the slightest mistake can make this file useless.

The Windows-Onboard tool “Notepad” is not sufficient for this.

I highly recommend to use “Notepad++”. All what follows is done with this editor.

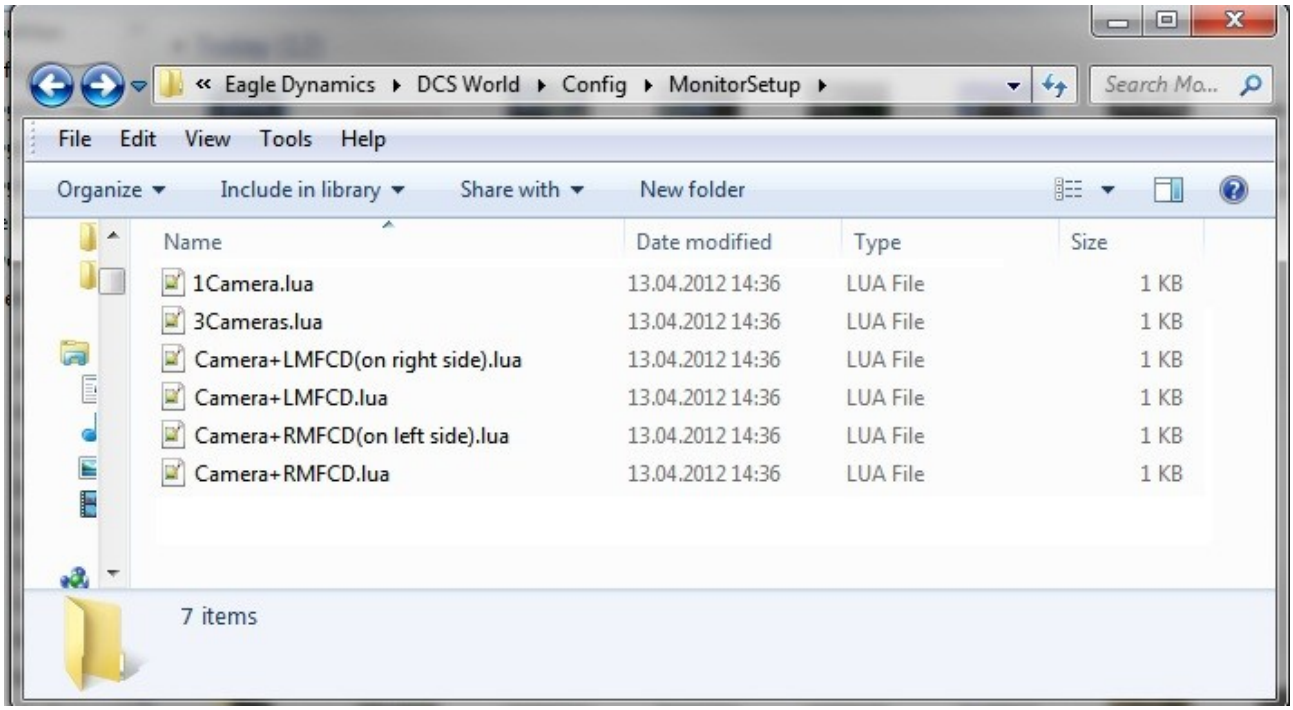
Quote from the website:
Notepad++ is a free (as in "free speech" and also as in "free beer") source code editor and Notepad replacement that supports several languages. Running in the MS Windows environment, its use is governed by GPL License.

Download : http://notepad-plus-plus.org/

Now install it! – ready?! good!

Lets navigate to the …\Eagle Dynamics\DCS World\Config**MonitorSetup** folder.

The folder looks by default like this:



This looks familiar to what you see when opening the “monitors” drop-down menu in DCS.

Here are some fundamentals that you need to know when editing a “MonitorSetup”.lua

All values can be negative/positive.

X coordinate expressions are always drawn from left to right
and
Y coordinate expressions are always drawn from top to bottom

They can be written as number or as expression or even as mathematical abstraction.
When a expression is used like “screen.height” it equals always the same value that is set in your
C:\Users\>your user name<\Saved Games\DCS\Config**Options.lua**

The Options.lua < This file stores all your In-game setting

So when you use 1024x768 as in-game resolution,
screen.width is 1024 pixels,
screen.height is 768 pixels,
screen.aspect is 1,333333333333333 (because 1024/768 = 4/3 = 1,333333333333333)

mathematical functions that can be used:

- + = plus
- - = minus
- * = multiply
- / = divide

That means that you can write
1024
or
screen.height + (screen.width / 4)

when using 1024x768 as in-game resolution.

Because: 768 + (1024 / 4) = 1024

another example:

you can write
screen.aspect or
4/3 or
1024 / 768

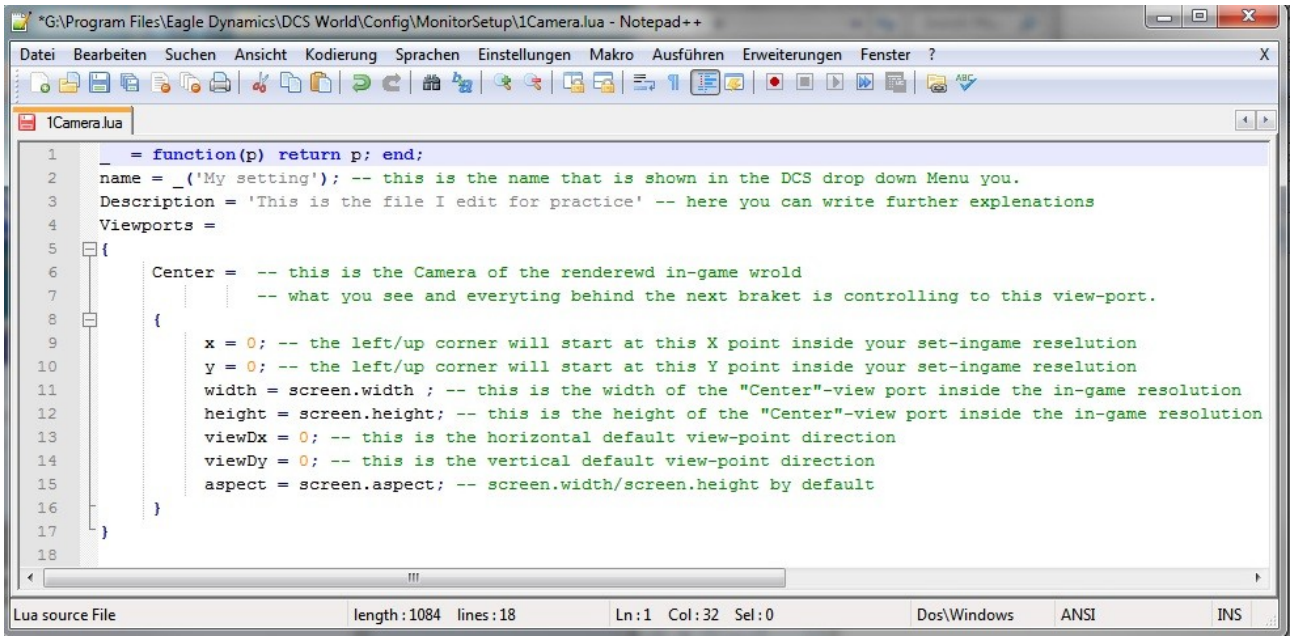
OK?!

So please read this above again to fully understand – This will be important later on.

2.1 The “Center” View-port

Now lets have a look at the “1.Camera.lua” and I already edited and add explanations (in Green) what every value does.

Open it simultaneously also in your Notpad++ and edit it exactly like I.
So you can practice a little and you will also have some hints in it. You will use this file for further editing/practice of your own setting.



Now save this file after you have edited it like I have in the picture above, as **“My Practice.lua”** in the …\Eagle Dynamics\DCS World\Config**MonitorSetup** folder.

Make sure you don't overwrite your 1Camera.lua !!!

We will use this file to add more functions later on.

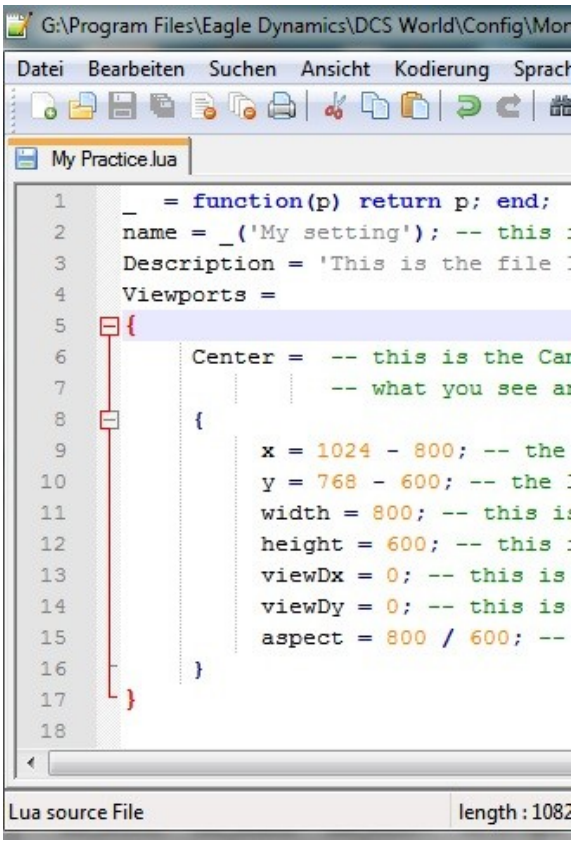
For our first practice will re-size the center view-port to 800x600 and move it inside the in-game resolution to the bottom right corner,
while the in-game Simulation screen stays at 1024x768.

So please set your in-game resolution to 1024x768
(windowed or full-screen. What works best for you)

Now open your “My Practice.lua” with Notepad++ and do this edits:

1. x = 1024 - 800;
2. y = 768 - 600;
3. width = 800;
4. height = 600;
5. aspect = 800 / 600;

This will look like this:



Now save this file and start DCS.
Select “My setting” in Monitors and set the resolution to 1024x768. - When you now start a mission it should look like this:

WOW!
You now learned how to move/re-size a view-port! Congrats!

Now lets add the MFCDs!

2.2 The “MFCD” View-ports

Now we open the the “LMFCD+Camera+RMFCD.lua” and “My Practice.lua” to edit it entirely.
You will notice that this “LMFCD+Camera+RMFCD.lua” has additional View-port entries.

These are “LEFT_MFCD =” and ”RIGHT_MFCD =”

(Note: Change this to “Shkval =” and “ABRIS =” when you using the Ka-50 to get a better overview)

They use a shorter syntax as the are only 2D.

```
x = 0;
y = 0;
width = screen.width / 3;
height = screen.height;
```

This file uses some mathematical expressions – so it will work on every monitor setting.

We will do similar to get the Left/Right MFCD in 300x300px in the lower corners.

Lets first “reset” your “My Practice.lua” and copy'n'paste everything bellow line 17 from the “LMFCD+Camera+RMFCD.lua” to your “My Practice.lua” (don’t forget the “UIMainView = Viewports.Center” line)

Now edit the “LEFT_MFCD” like this:

```
x = 0;
y = screen.height -300;
width = 300;
height = 300;
```

and the “RIGHT_MFCD” to that:

```
x = screen.width -300;
y = screen.height -300;
width = 300;
height = 300;
```

Please pay special attention to the X/Y expression. And remember what you already learned
…– than you will realize that we sure could also use

“y = 768 -300;” or simply “y= 468;”
but by writing
y = screen.height -300;

we make sure that they will <u>always</u> at the bottom-line of your used in-game resolution. Whatever this is...

So the file will look like this:

My Practice.lua | LMFCD+Camera+RMFCD.lua

```
_   = function(p) return p; end;
name = _('My setting'); -- this is the
Description = 'This is the file I edit
Viewports =
{
    Center =  -- this is the Camera of
              -- what you see and every
    {
        x = 0; -- the left/up corner
        y = 0; -- the left/up corner
        width = screen.width; -- this
        height = screen.height; -- th
        viewDx = 0; -- this is the ho
        viewDy = 0; -- this is the ve
        aspect = screen.aspect; -- sc
    }
}

LEFT_MFCD =
{
x = 0;
y = screen.height -300;
width = 300;
height = 300;
}

RIGHT_MFCD =
{
x = screen.width -300;
y = screen.height -300;
width = 300;
height = 300;
}

UIMainView = Center
```

Now save this file and start DCS. (Double-check for a missing semicolon !)
Select “My setting” in Monitors and set the resolution to 1024x768. - When you now start a mission it should look like this:

3. The “MFCD” View-ports at a second monitor.

Things to remember:
DCS knows nothing about how many monitors you have attached – DCS only orientates on your overall in-game resolution and divides this space to position the outputs on, no matter if it is full-screen or windowed.

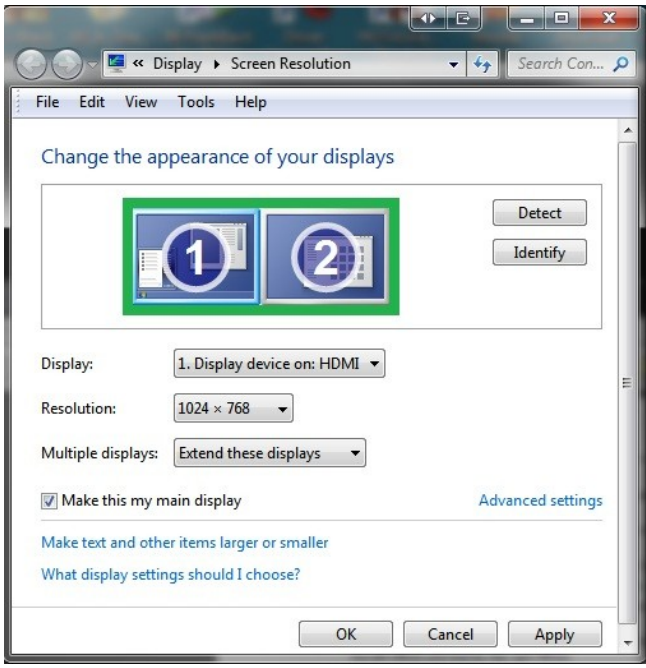
So it is very imported how you set up your monitors in the windows properties!

A ideal setup has always the same vertical resolution on all monitors. As DCS renders always a square. So the goal is to configure a in-game resolution that is exactly matching your combined resolution of your both monitors.

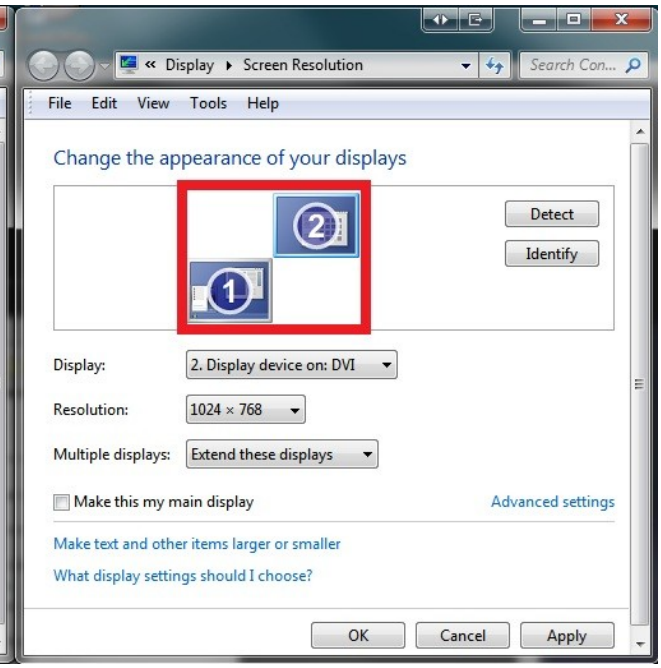
3.1 Two Monitors with same resolution

Lets start by setting up our monitors:

Good:



Bad:



In the example above I have two monitors each 1024x768.

So in the “good” setting we have to set DCS to 2048x768 to cover the whole space on the two monitors.

And in the “bad” setting we need four times as much – 2048x1440 to get both screens covered by DCS !!!

off course we will use the “Good” setting. - the goal is to use always the smallest possible resolution.

It also always advisable to sett your left monitor as “MainScreen”
As sometimes windows are not properly spawned across the whole Desktop if the left/up corner of your main-screen is not at the X-0/Y-0 position of your entire desktop.

And if you can enable NVIDIA-Sorround or Eyefinity you should off course do this – than you will be able to use the “Full-screen” setting and have a overall better performance. When you can't – you have to use “windowed” (or SoftTH – see the link lists) .

So let’s assume you have everything set up correctly so you can use 2048x768.

DCS will usually only schow you the possible resolution of your main-screen - so 2048x768 will not show up in the in-game drop-down menu. - if this is the case :

A) type in “2048x768” manually and press “OK”

if this is however not possible...

B) use this instruction: http://forums.eagle.ru/showthread.php?t=87104

Now we can use all newly learned and to edit our “MY Practice.lua” to let it work with the Two monitors.

We will edit a setting like this:

And I did made two versions that will appear the same on a 2048x768 resolution.
But the second one will work for every set-up that uses two monitor of the same size side by side.
Please compare them to realize how it is done.

Using only Pixel values:

```
_  = function(p) return p; end;
name = _('My setting'); -- this is
Description = 'This is the file I e
Viewports =
{
    Center =  -- this is the Camer
              -- what you see and
    {
        x = 0; -- the left/up cor
        y = 0; -- the left/up cor
        width = 1024; -- this is
        height = 768; -- this is
        viewDx = 0; -- this is th
        viewDy = 0; -- this is th
        aspect = 1.33333333; -- s
    }
}

LEFT_MFCD =
{
x = 1024;
y = 128;
width = 512;
height = 512;
}

RIGHT_MFCD =
{
x = 1536;
y = 128;
width = 512;
height = 512;
}

UIMainView = Center
```

Using only mathematical expressions:

```
_  = function(p) return p; end;
name = _('My m setting'); -- this is t
Description = 'This is the file I edit
Viewports =
{
    Center =  -- this is the Camera o
              -- what you see and eve
    {
        x = 0; -- the left/up corner
        y = 0; -- the left/up corner
        width = screen.width / 2; --
        height = screen.height; -- t
        viewDx = 0; -- this is the h
        viewDy = 0; -- this is the v
        aspect = screen.aspect / 2;
    }
}

LEFT_MFCD =
{
x = screen.width / 2;
y = (screen.height / 3) / 2;
width = screen.width / 4;
height = screen.width / 4;
}

RIGHT_MFCD =
{
x = (screen.width / 4) * 3;
y = (screen.height / 3) / 2;
width = screen.width / 4;
height = screen.width / 4;
}

UIMainView = Center
```

Now you should have enough knowledge to position the view-ports everywhere you want. !!!

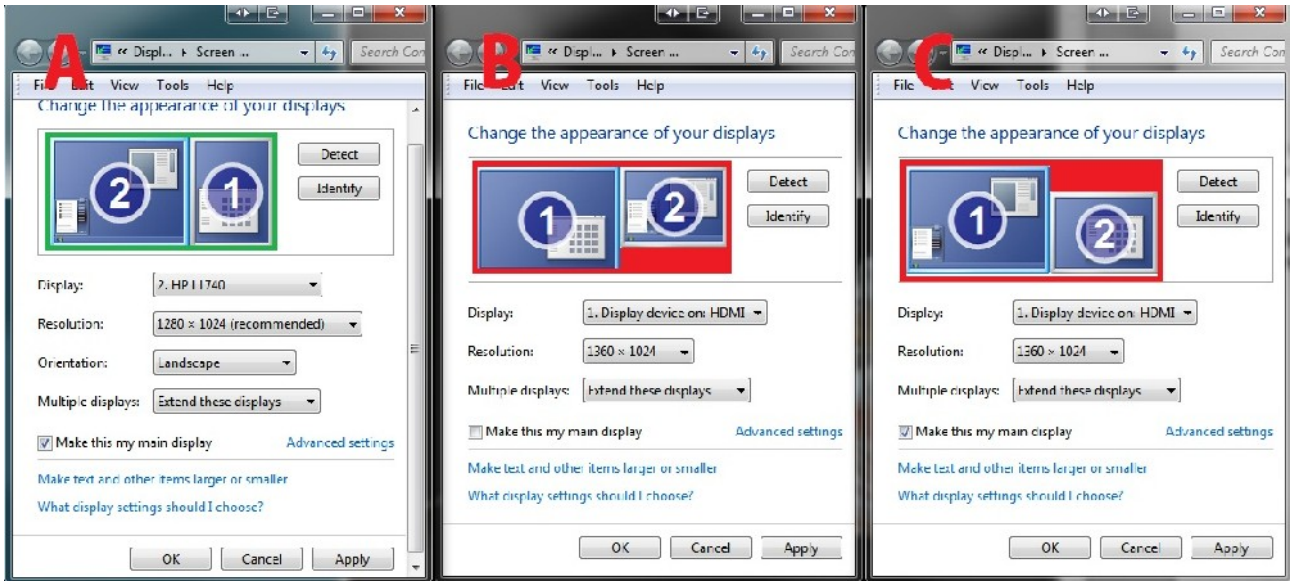
And it is almost the same for a Triple-head set-up.

Now we take a look at different sized Monitors.
I will also introduce a new view-port that is dedicated to the Simulation GUI, that is showing the Briefing screen, Multi-player GUI, rearm-menu and so on.
So keep on reading! - and don’t miss the link list with important workarounds for known problems/bugs when using more than one screen.

3.1 Two Monitors with different resolution

It is basically the same as before, but now we must ask our-self first how to place them, because using monitors that are not equal in height will always come with some problems.

Lets have a look again at the desktop properties – we assume that we have two screens. One (the main-screen) is 1280x1024 and the second is 1024x768.



A: Perfect conditions
The second screen in Portrait. Use almost the same method like for the two screen setup in 3.1, the in-game resolution would be 2048x1024.

B: Good conditions
We will not be able to see parts of the right bottom-line
So we will not be able to see the whole info-bar in the out-side views – see the Red space.

C: Bad conditions
We will have heavy problems with the communication menu and the Map-view to use all buttons/options – see the Red space.

For all problems that I mentioned above are workarounds via some file edits available, but some of them are quite complex so I will not explain them here . You will check the link-list at the end how to fix them.

Lets do a edit for example B. And this time we will use the Ka-50.
But all what is shown works almost the same for the A-10C.

We have again to calculate the whole in-game resolution.
Of this two screens side by side 1280x1024+1024x768 .

It also always advisable to sett your left monitor as “MainScreen”
As sometimes windows are not properly spawned across the whole Desktop if the left/up corner of your main-screen is not at the X-0/Y-0 position of your entire desktop.

You have to use “windowed” (or SoftTH – see the link lists) .

So let’s assume you have everything set up correctly so you can use 2304x1024.

DCS will usually only present you the possible resolution of your main-screen - so 2304x1024 will not show up in the in-game drop-down menu. - if this is the case :

A) type in “2304x1024” manually and press “OK”

if this is however not possible...

B) use this instruction: http://forums.eagle.ru/showthread.php?t=87104

We want that it will look like this:

In the following code I have also inserted a new View-port

Its the “GUI”

I edited the bottom line in such a way that it also points to this view-port.

So the Simulation-GUI will only spawn at the right monitor.

My Practice.lua

```lua
_  = function(p) return p; end;
name = _('My setting'); -- this is the name that is shown in the DCS drop down Menu you.
Description = 'This is the file I edit for practice' -- here you can write further explenations
Viewports =
{
     Center =  -- this is the Camera of the renderewd in-game wrold
               -- what you see and everything behind the next bracket is controlling only this view-port.
     {
          x = 0; -- the left/up corner will start at this X point inside your set-ingame reselution
          y = 0; -- the left/up corner will start at this Y point inside your set-ingame reselution
          width = 1280; -- this is the width of the "Center"-view port inside the in-game resolution
          height = 1024; -- this is the height of the "Center"-view port inside the in-game resolution
          viewDx = 0; -- this is the horizontal default view-point direction
          viewDy = 0; -- this is the vertical default view-point direction
          aspect = 1280/1024; -- screen.width/screen.height by default
     }
}

Shkval = -- or also "LEFT_MFCD ="
-- ratio 4:3
{
x = 1280;
y = 432;
width = 448;
height = 336;
}

ABRIS = -- or also RIGHT_MFCD =
-- ratio 3:4
{
x = 1728;
y = 0;
width = 576;
height = 768;
}

GUI=
{
x = 1280;
y = 0;
width = 1024;
height = 768;
}

UIMainView = GUI
```

4. Link-list for known bugs and the workarounds

Here is a list of forum postings to help you out with the most common problems you may encounter when using more than one screen and editing the “MonitorSetup.lua”

Triple-head/Multi-Monitor GUI and NVG Fix

- **a “must read” for you**

How to move the status bar?

- instruction to move the Info-bar in DCS 1.1.2.1

A Plea for View-Export/Multi-head/TH Users.

- various workarounds for some known bugs. Just follow the links.

Fix: adding a custom resolution to in-game options.

enabling Cockpit Exports in DCS-A10

- This pre-sets will switch on the export of avionics to dedicated view-ports - just by simple copy'n'paste. One of the pre-sets will also only disable the in-cockpit MFCDs for better performance.

SoftTH NEWS

- a in-sight overview about SofTH. SoftTH is donation-ware and let you do what the big GPU company's don't allow you to do or only at high costs.
  SoftTh let you render every monitor combination at High FPS in full-screen mode.
  You can even Mix SoftTH with AMD-Eyefinity and/or TH2GO,NVIDIA-Surround !
  Especially interesting for DCS. -SoftTH let you use full-screen Mode If you export MDFS/ABRIS ect. on additional screens . You are not forced to use Windowed mode any more.
  Even Helios is working with DCS in Fullscreen on all secondary heads.
  And Yes , it will gain your performance!

Multi-monitor set-up guide & help (unofficial)

- Please post your question(s) in this thread above if you having problems that you can't solve by using this guide. Many helping folks visit this thread and will sure help you too!

Thanks for reading – I hope I could help you to enjoy DCS even more!

See you in the forums! :)

>>> http://forums.eagle.ru/index.php

PeterP
http://forums.eagle.ru/member.php?u=59989
28/05/2012