Apps for flight simulation.

aviaServer

for aviaFlyByWire, aviaFlightMonitor, aviaCDU, aviaEFB and aviaOverhead

Welcome

aviaServer is the main server application that allows you to connect your tablet / phone for different services (such as a remote CDU or a remote Overhead) supporting many different mobile devices (Android, iPhone / iPad, Windows tablet / phone).

This solution does not have any limitation as to running FlightSim in windowed or full-screen mode and has a minimal impact on system performance. It also supports multiple devices at the same time, so you can use your tablet in your home cockpit while using your phone to monitor your flight.

Free Version for Testing

All services can be tested before deciding to purchase a license:

- aviaFlyByWire is limited to the area of LOWS (Salzburg, Austria)
- aviaFlightMonitor is limited to approaches to LOWS (Salzburg, Austria).
- aviaCDU, aviaEFB and aviaOverhead are limited to 'View Only' mode – meaning you can see the current status of the aircraft but not make any inputs.

Requirements:

- Microsoft Flight Simulator X with SP2, Microsoft Flight Simulator X:SE, Lockheed Martin Prepar3D v2, v3, v4, v5 or Microsoft Flight Simulator 2020
- .NET Runtime 4.5.2
- If you run Prepar3D, make sure FSX-SP2-XPACK SimConnect is installed. You'll find it in **[P3D folder]\redist\Interface\FSX-SP2-XPACK\retail\lib\SimConnect.msi**

Disclaimer:

Private entertainment use only! Do not use in commercial environments without written approval. You may not alter, reverse engineer or otherwise modify any portion of this software. The software is provided as is, without warranty of any kind including but not excluding loss of data, loss of revenue or lost profits. Use at your own risk. PMDG's EULA needs to be adhered to as well, regardless of this disclaimer.

Licenses & Credits:

- B737, B777 and B747 CDU images provided by Thomas Stilner
- B777 and B747 Overhead graphics provided by PMDG, © PMDG
- EFB image for the B747-8 provided by PMDG, © PMDG
- MD-82 CDU images and font provided by Leonardo SH, © Leonardo SH
- CRJ CDU images and fonts provided by Hans Hartmann
- B717 CDU images and fonts provided by TFDi Design, © TFDi Design
- B787 images provided by QualityWings, © QualityWings
- Q400 CDU images and fonts provided by Majestic Software, © Majestic Software
- QR-Code Generation Library: https://github.com/Alxandr/QrCode.Net
- Signus Digital Font, downloaded from http://www.myfontfree.com/signus-digital-nbp-myfontfreecom55f48051.htm. Licensed under Attribution-ShareAlike 3.0 Generic (CC BY-SA 3.0), http://creativecommons.org/licenses/by-sa/3.0/
- 737 Overhead graphics based on the original work of Paulo de Angelis with permission to use
- SharpZipLib Library: https://github.com/icsharpcode/SharpZipLib

Instructions

1. Running the server

There is a single application called aviaServer.exe that is compatible with all 3 platforms: Flight Simulator 2020, Prepar3D and Flight Simulator X. As soon as you run the application, it will ask for administrator credentials (required) and will display the EULA. If you agree, go ahead and click on the 'I Accept' button to start the server and it will add the necessary exceptions to your firewall (you might need to restart the server after this step),

After the initialization is completed, you will see a small **aviaworx** icon in your task tray:

If you can’t see the icon, you might need to press the arrow button to show all icons.

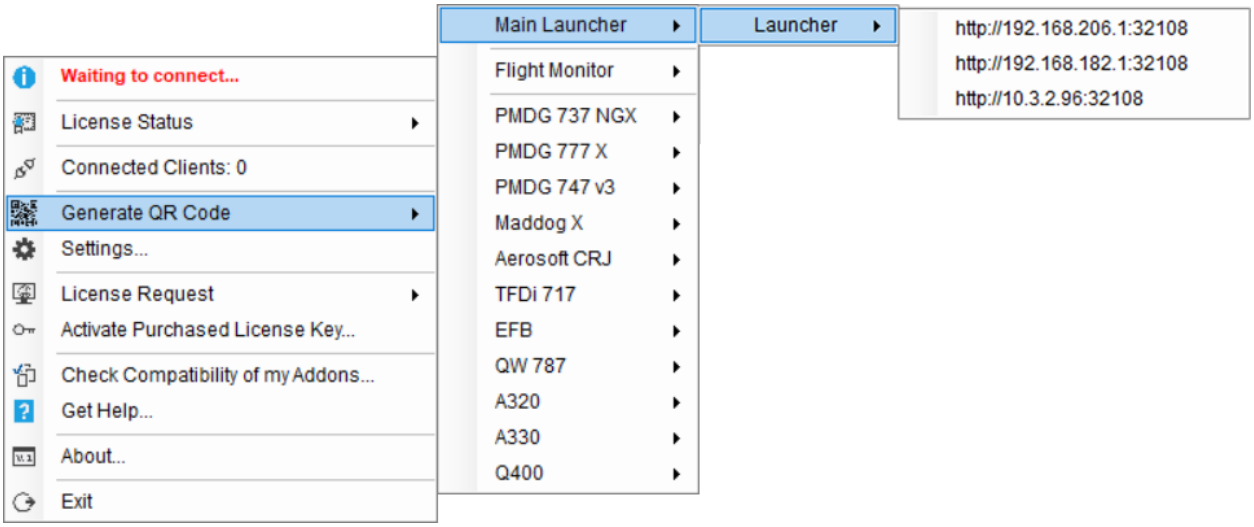
2. Establishing Connection

Now you are ready to connect your mobile device to the server. The easiest method is to access the ‘Main Launcher’, which by default runs on port 32108.

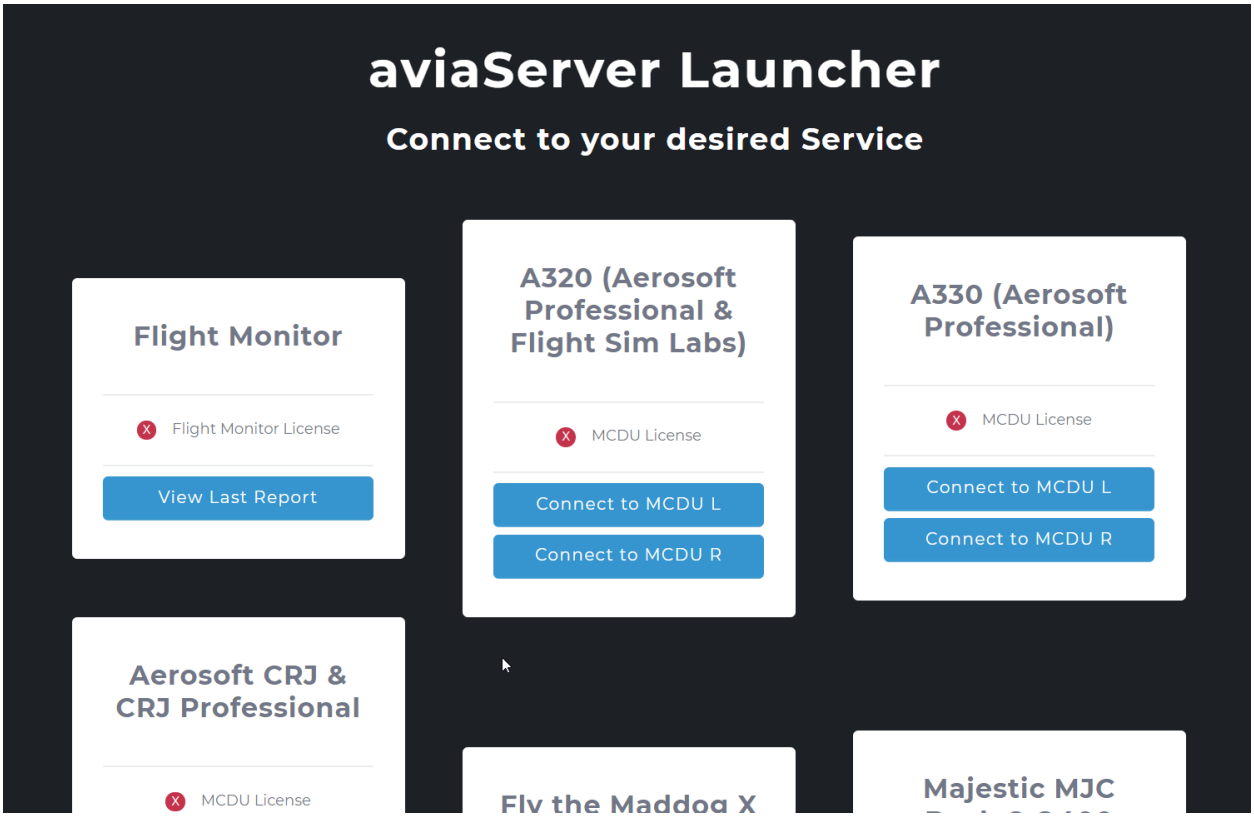
You can either input the appropriate URL manually:

```
http://<your IP>:32108
```

Or, alternatively, if you have a QR app, you can simply right-click the tray icon, select 'Generate QR Code' for your correct network connection and scan the logo with your device's camera.



QR for http://192.168.0.48:32111
Instructions
Scan the QR-Code and use your browser to load the CDU on your mobile device.
To see how to add a Webapp to your home screen, please have a look at the following websites:
For Android: http://mobile-pixels.com/pin-webapp-website-android-homescreen/
For Apple: https://www.maketecheasier.com/save-web-page-as-home-screen-app-ios/
Or, open this link in your browser


aviaServer Launcher
Connect to your desired Service
Flight Monitor
Flight Monitor License
View Last Report
A320 (Aerosoft Professional & Flight Sim Labs)
MCDU License
Connect to MCDU L
Connect to MCDU R
A330 (Aerosoft Professional)
MCDU License
Connect to MCDU L
Connect to MCDU R
Aerosoft CRJ & CRJ Professional
MCDU License
Majestic MJC

You can then add the app to your home screen, so that it behaves like a native app on your device. See these links for more details:

For Android & Apple: https://natomasunified.org/kb/add-website-to-mobile-device-home-screen/

You can follow the same steps to connect to one of the services directly without first opening the Main Launcher.

3. Purchasing Licenses and Enabling Full-Control

Purchasing licenses can be done through aviaServer or through one of the partner stores (such as SimMarket or Aerosoft).

If you purchase a license through one of the partner stores, you will receive a license key that you need to activate through aviaServer. See the next chapter for details.

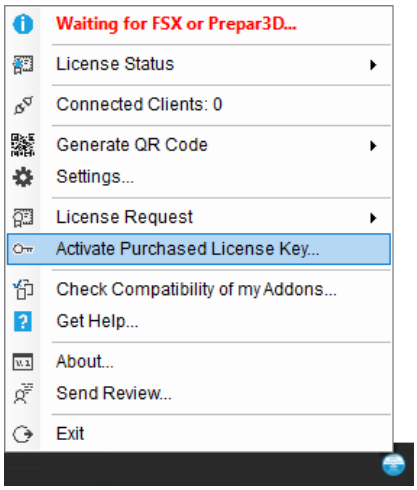
If you purchase through aviaServer, you will receive your licenses via email. Please note, this might take a while since it needs to be processed manually. See chapter 5 for details.

In both cases, you will receive a license that is bound to the hardware of your computer that is running aviaServer.

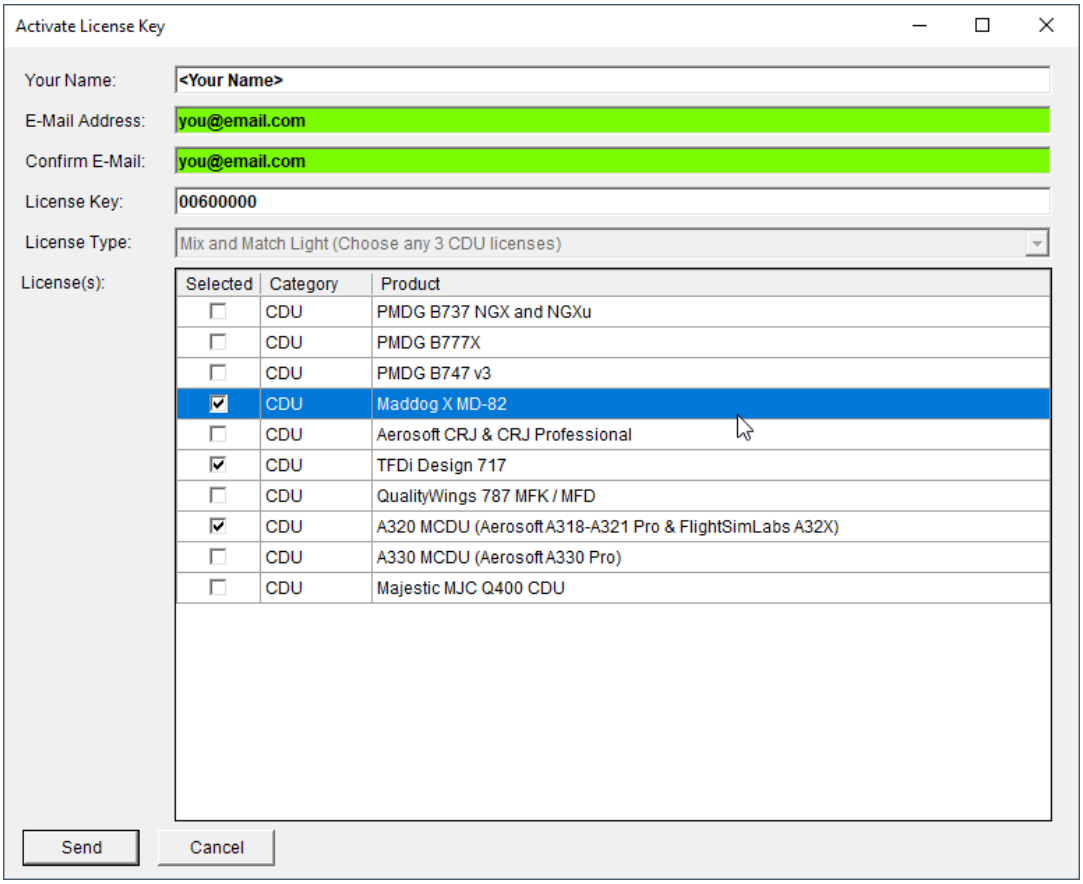
4. Purchasing through Partner Stores

After purchasing, you should have received a license key from the partner store.

You now need to activate this key in aviaServer:



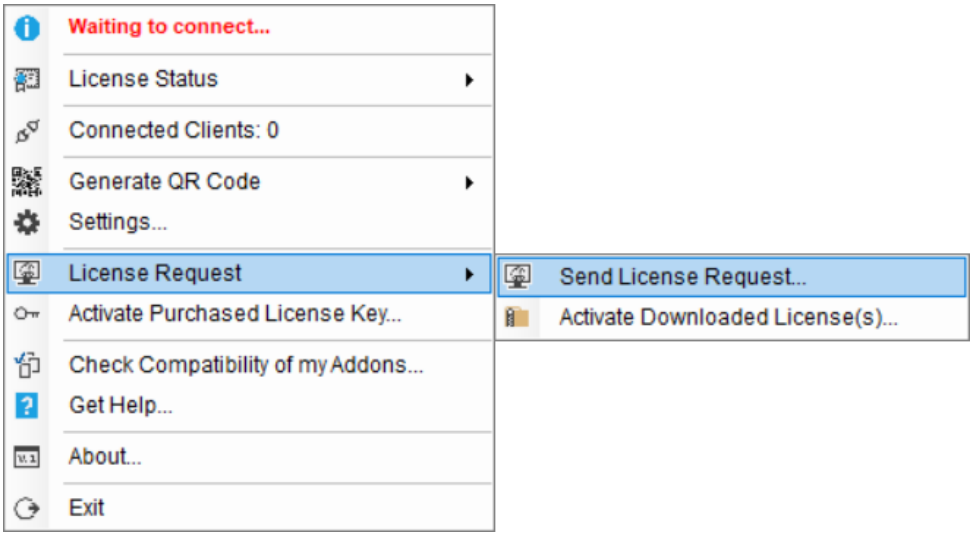
Enter your details and, depending on the license key, you can choose the products that you would like to purchase:

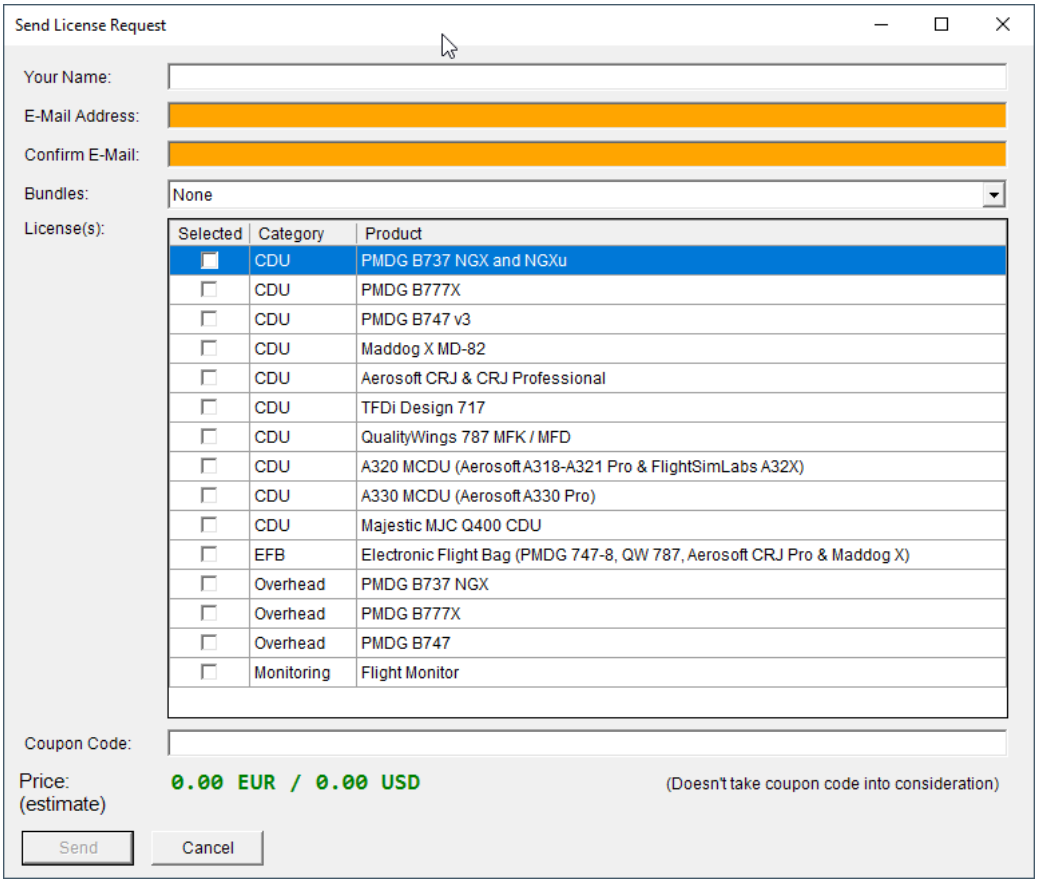


After pressing Send, aviaServer will contact the licensing server and will activate your licenses automatically. You will receive a confirmation e-mail with additional information, in case the automatic activation didn’t complete successfully. Note – all licenses are bound to the hardware of your computer.

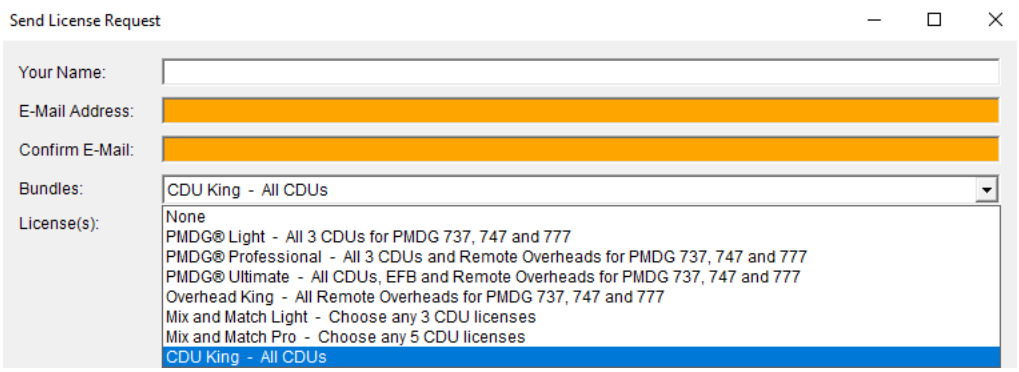
5. Requesting licenses through aviaServer

Choose '**License Request**' → '**Send License Request**' (note: this requires internet connectivity). A window will pop-up asking for your name, e-mail address and the license you would like to purchase. Once you press the Send button, a confirmation e-mail will be sent to your address as well, such you can verify the e-mail has been sent.





You also have the option of choosing ‘bundles’, giving you a discount based on the number of licenses you are buying:



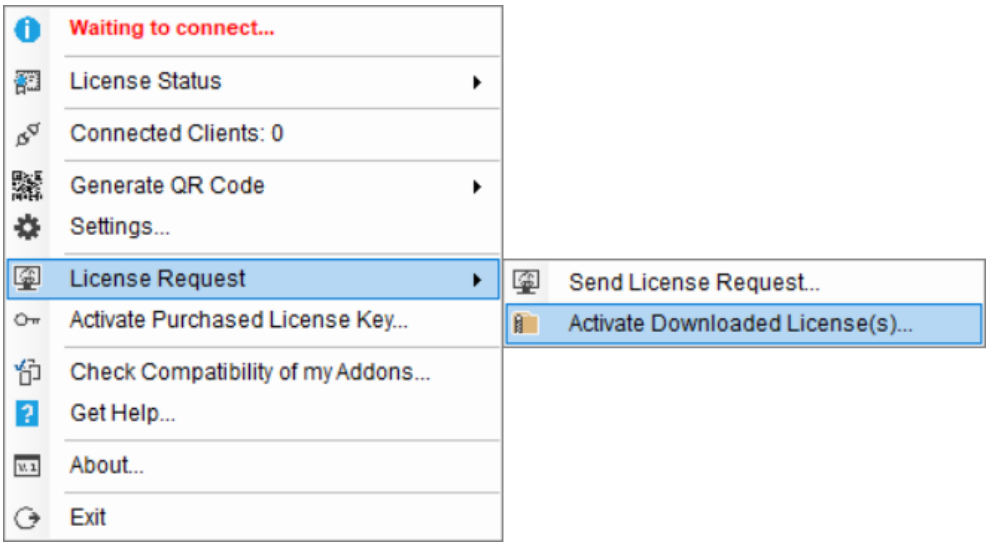
The following bundles are available:

- PMDG® Light – Includes all 3 CDUs for the PMDG 737, 747 and 777
- PMDG® Professional – Includes all 3 CDUs and the 3 Remote Overheads for the 737, 747 and 777
- PMDG® Ultimate – Includes all 3 CDUs, the 3 Remote Overheads for the 737, 747 and 777 as well as the EFB license
- Overhead King – Includes all 3 Remote Overheads for the 737, 747 and 777
- Mix and Match Light – Choose any 3 CDU licenses
- Mix and Match Pro – Choose any 5 CDU licenses
- CDU King – Includes all CDU licenses

Note: bundles might not be available if you already own licenses from the chosen group. In this case, you can still purchase licenses individually.

After sending the request, you will receive a link to pay through PayPal. PayPal will automatically inform me once the payment has been completed. If you have a different e-mail registered at PayPal than the one you used to generate the LicenseRequest, please indicate so during the payment process – this allows me to pair the payment with the associated license request.

After payment has been confirmed, you will receive an e-mail including the license file archive (.zip file). To activate the license(s), download this .zip file and choose '**License Request**' → '**Activate Downloaded License(s)**' and navigate to the .zip file that you have downloaded. The license files will then be copied to the directory where aviaServer is running and, once aviaServer is restarted, the new licenses will be active.



Note: If you don't see the .zip file as part of the email's attachment, try using a different e-mail client. Microsoft Mail in Windows 10 will sometimes hide the attachment!

Should your hardware configuration change significantly, you could end up losing 'Full Control' and you would be back in 'View Only' mode. In this case, simply generate a new license request and send it to me. You will then receive a new license file.

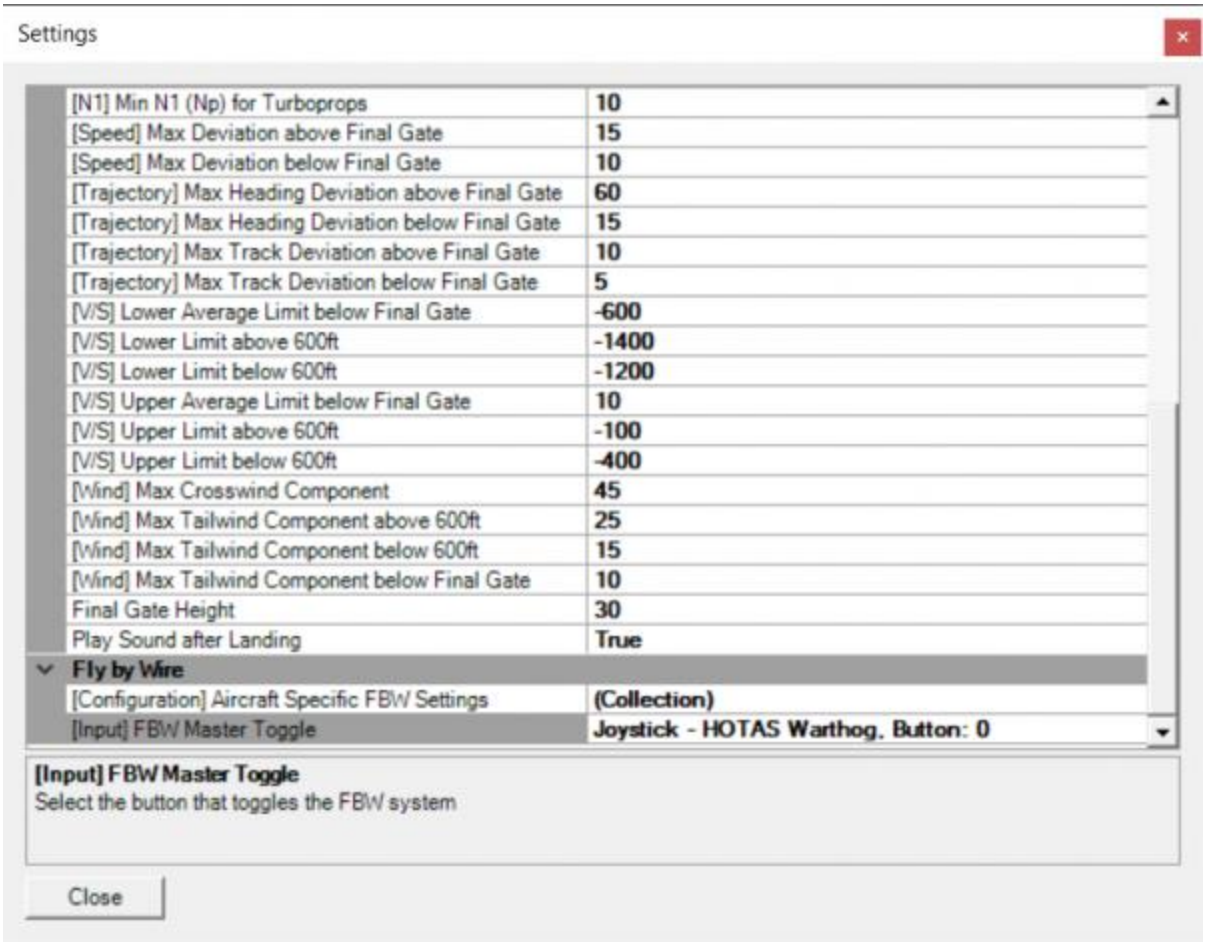
6. aviaFlyByWire

aviaFlyByWire is a flight control augmentation system that takes care of making manual flight easy, intuitive and smooth.

aviaFlyByWire intercepts your flight control hardware's aileron and elevator signals (let's call them X and Y values) and redirects these signals to a flight control loop. This then interprets the raw signals and uses them to command roll and pitch rates (the more you deflect your elevator, the faster the pitch change). Finally, the control loop calculates the actual aileron and elevator surface positions and sends these output signals to the aircraft. Very similar to the fly-by-wire mechanisms found in complex airliners.

aviaFlyByWire, like every other aviaWorx app, is fully integrated into aviaServer – so make sure that is running.

First off, you need to assign a button on your hardware to activate / deactivate aviaFlyByWire. This can be easily done through the Settings dialog of aviaServer:



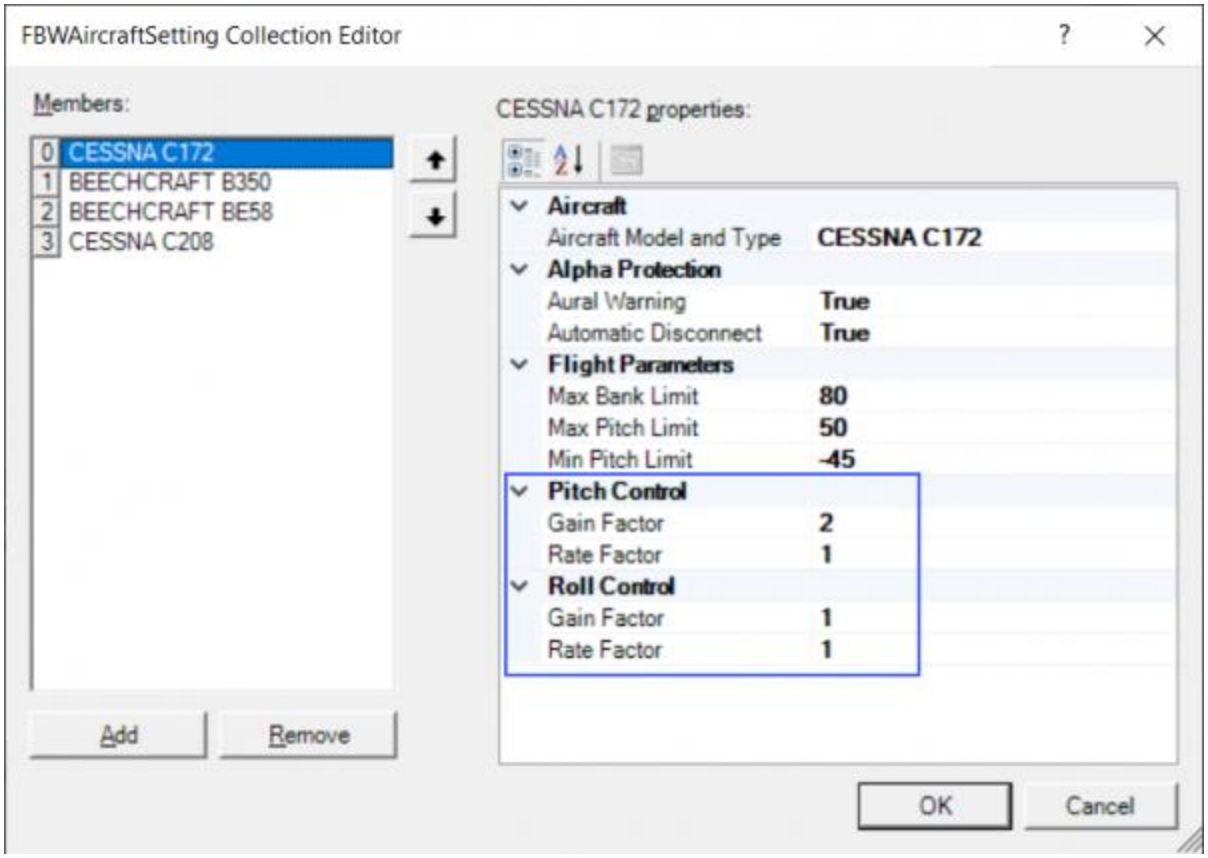
Hint: Scroll down to the end of the button list and choose 'Detect...' to easily select a button on any connected device!

Depending on your current flight regime, the following will happen when you active aviaFlyByWire:

- On the ground: aviaFlyByWire will arm itself but will not modify your control input. This is called Direct Mode
- During takeoff: aviaFlyByWire's so-called Normal Mode, where roll and pitch rate are actively commanded, is blended-in progressively. So at lift-off, you will be Direct Mode and gradually aviaFlyByWire will take over control, resulting in a smooth transition
- In the air: aviaFlyByWire's Normal Mode is active. Should pre-set envelope limits be exceeded, aviaFlyByWire will give an aural warning and, if the situation is not rectified, aviaFlyByWire will disengage. These limits include: impending stall, pitch exceeds 50° nose up or 45° nose down and roll angle exceeds 80°. Normal Mode also has an auto-trim function, where elevator forces are trimmed out automatically. Auto-trim is active up to 35° of roll angle.
- During flare: similar to the takeoff phase, aviaFlyByWire will transition from Normal Mode to Direct Mode as you approach to land, to make landing like you are used to from conventional aircraft.

Adjusting aviaFlyByWire Parameters

The default control parameters have been selected in such a way, that it allows smooth operation for a broad number of aircraft. After a new aircraft is loaded for the first time, these default control parameters are assigned. After this, you can adjust the parameters per aircraft to fine-tune the control algorithm. There are two main parameters influencing bank and pitch independently:



Gain Factor: this value, by default 1.0, defines how ‘aggressively’ the yoke is moved. A lower value reduces sensitivity and responsiveness. Choosing a too high value can result in unwanted oscillations up to a point where the yoke might move erratically. So keep this in mind when increasing the values.

Rate Factor: this value, also by default 1.0, defines the rate at which the control loop tries to achieve a change. The higher this value, the higher the commanded rate based on your your hardware’s deflection. You can choose a higher value for aerobatic / military aircraft and a lower value for transport category aircraft to ensure smoother flight

7. aviaFlightMonitor

aviaFlightMonitor monitors your approaches and automatically generates a detailed risk assessment report 15 seconds after landing. The approach segment is automatically tracked (the last 4000 feet) and then subsequently analyzed to give you direct feedback of your performance during the approach.

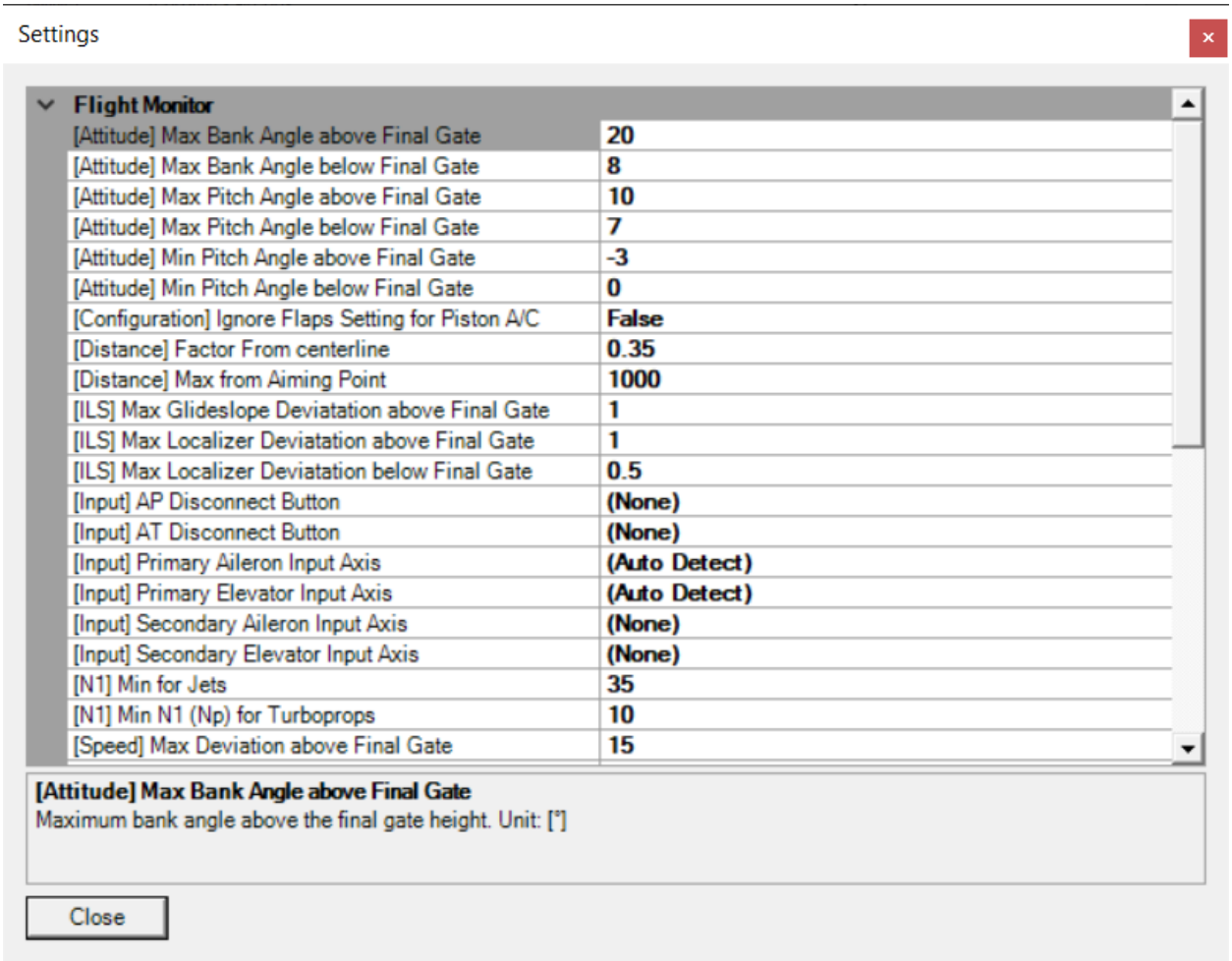
aviaFlightMonitor supports all aircraft but is optimized for fixed wing transports.

To view the report, either connect via the Main Launcher or use this URL:

```
http://<your IP>:32109/flightmonitor/report.html
```

Each report Is additionally saved locally so that you can review it at any point.

You can modify the limits as well as the joystick setup in the Settings dialog:



See https://www.aviaworx.com/aviaflightmonitor for more details.

8. aviaCDU

aviaCDU allows you to connect your mobile device with the CDU of the supported aircraft.

For FSX/P3D these are:

- Aerosoft A318-A321 Pro Package (latest Service Packs required)
- Aerosoft A330 Pro Package
- Aerosoft CRJ SP1
- Aerosoft CRJ Professional 2.2.0.1
- Flight Sim Labs A320
- Fly the Maddog X MD-82 with SP 1.10
- Majestic Software's Q400 version 1.020b
- PMDG 737 NGX with SP1c
- PMDG 737 NGXu
- PMDG 777X
- PMDG 747 QOTS II
- QualityWings 787 version 1.1.3
- TFDi Design 717

For FS2020:

- Aerosoft CRJ
- Fly the Maddog X MD-82
- PMDG 737, including the 737-600, 737-700 and 737-800

Notes:

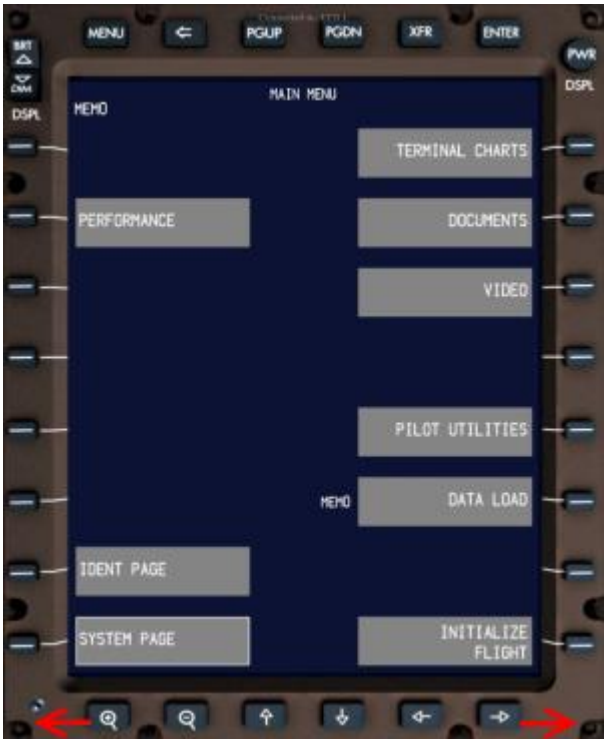
- For the Q400 to work correctly, the 'mjc84.ini' file needs to be setup correctly: Under the category '[UDP_CONNECTOR_3]' the following setting needs to be enabled as follows: 'UDP_ENABLED=1'.
  Note – this is activated by default and only needs to be modified if this has been changed by you.
- For the PMDG aircraft to function correctly, the 'PMDG_Options.ini' file needs to contact the Databroadcasting flags. This is configured **automatically** by aviaServer.

It is also possible to cycle through the screens for a given addon without having to leave the full screen view. This means, as an example, that you can cycle through the 3 CDUs for the 777 (Left, Right, Center) or the 2 CDUs and DAVE for the Aerosoft CRJ. A pop-up will indicate which screen is currently active.

There are 2 ways to achieve this:

1) By touching on the top-most left/right CDU mounting screw (DAVE: edges of the title bar):

Exception for the B747-8:



CDU:

a. Previous CDU (Left->Center->Right->Left)
b. Next CDU (Left->Right->Center->Left)
c. Left EFB
d. Right EFB

EFB:

Lower Left Screw: Other EFB (Left->Right->Left)
Lower Right Screw: Left CDU

2) Or by touching the screen with 2 fingers simultaneously. The way this works: You touch (anywhere) on the screen with FINGER 1. You keep FINGER 1 held down while touching with FINGER 2 – the moment both fingers are detected, the CDU screen will cycle. Note – if the second finger touches to the RIGHT of your first finger, then the next CDU screen will show. If the second finger is to the LEFT of your first finger, the previous screen will show. Please also

note – this doesn’t work with the EFB since two-finger gestures are used for panning and zooming.

Each CDU has a dedicated port. Following ports can be used:

- B737 NGX & NGXu – Left CDU: **32111**
- B737 NGX & NGXu – Right CDU: **32112**
- B777X – Left CDU: **32113**
- B777X – Right CDU: **32114**
- B777X – Center CDU: **32115**
- B747 QOTS II – Left CDU: **32116**
- B747 QOTS II – Right CDU: **32117**
- B747 QOTS II – Center CDU: **32118**
- Fly the Maddog X MD-82 – Left CDU: **32119**
- Fly the Maddog X MD-82 – Right CDU: **32120**
- Aerosoft CRJ – Left CDU: **32121**
- Aerosoft CRJ – Right CDU: **32122**
- Aerosoft CRJ – DAVE: **32125**
- TFDi Design 717 – Left CDU: **32123**
- TFDi Design 717 – Right CDU: **32124**
- QualityWings 787 – Left MFK: **32126**
- QualityWings 787 – Right MFK: **32127**
- EFB – Left: **32128**
- EFB – Right: **32129**
- A320 – Left MCDU: **32130**
- A320 – Right MCDU: **32131**
- A330 – Left MCDU: **32134**
- A330 – Right MCDU: **32135**
- Q400 – Left CDU: **32132**
- Q400 – Right CDU: **32133**

The URL for the NGX Left CDU would look something like this:

```
http://<your IP>:32111
```

Likewise, the URL to connect to the 777X Right CDU would be:

```
http://<your IP>:32114
```

9. aviaEFB

Similar to aviaCDU, aviaEFB allows you to use your mobile device to access the EFB of the following aircraft for FSX/P3D:

- Aerosoft CRJ Professional 2.2.0.1 (P3D only)
- Fly the Maddog X MD-82 (Left EFB connects to the EFB while the Right EFB connects to the PMS)
- PMDG 747-8 QOTS II and PMDG 777X
- QualityWings 787

10. aviaOverhead

With aviaOverhead, you can run a replica overhead panel of one of the following aircraft either on a networked PC or on a mobile device.

For FSX/P3D these are:

- PMDG B737 NGX with SP1c
- PMDG B737 NGXu
- PMDG B777X
- PMDG 747 QOTS II

For FS2020:

- PMDG 737 NGX

There are 2 ways to use aviaOverhead:

1. Run aviaOverhead on your mobile device:
    a. The easy way: right-click the aviaServer tray icon and click on Generate QR code. You will see appropriate options for the 737 and 777.
    b. The URL for the Remote Overhead is:
    737: `http://<your IP>:32109/ovhd/737/737.html`
    747: `http://<your IP>:32109/ovhd/747/747.html`
    777 Passenger: `http://<your IP>:32109/ovhd/777/777_pax.html`
    777 Freighter: `http://<your IP>:32109/ovhd/777/777_freighter.html`

2. Run aviaOverhead as a separate application on a networked PC. The aviaOverhead Client communicates with aviaServer through port **32110**. This port is automatically added to the Windows firewall. Run the aviaOverhead Client application. At first run, it will ask you to input the server address. Type in the hostname or IP address of the PC running aviaServer. Example: '`localhost`'. No need to add any port information here. You can also choose which aircraft's overhead panel you would like to see, including passenger and freighter variants. After this, the **Main Overhead** should be visible. The connection to the server is established automatically and

it will silently try to reconnect should the connection drop. As such, it doesn't matter if the aviaOverhead Client is started before or after starting aviaServer.

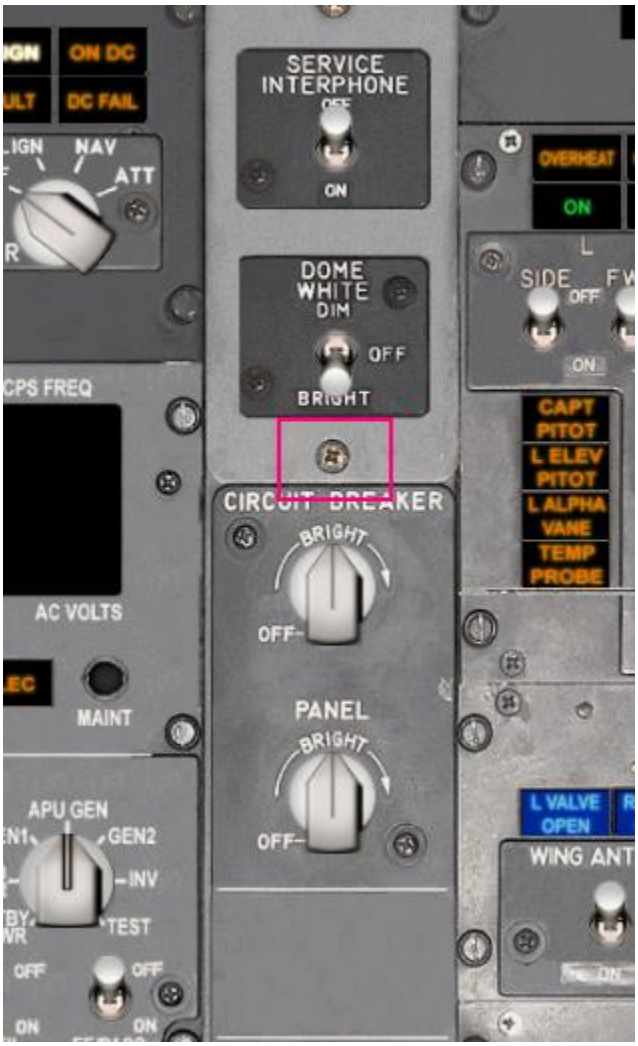
Notes for aviaOverhead for mobile devices

You can zoom in/out by double tapping on an empty area. When zoomed in, tap once in an empty area to be able to pan around the overhead panel. Zoom out by double tapping on an empty area once again.

There are also hidden click spots to cycle between daylight and night modes:

These are:

- For the 737:



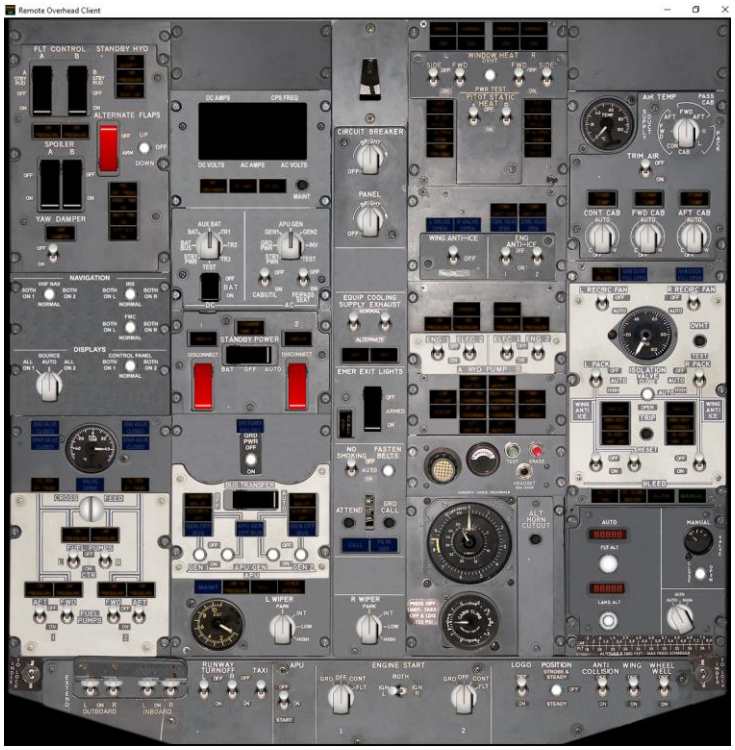
- For the 777:

- For the 747:

You can then use the lighting controls to adjust dome light and panel backlights.

Notes for aviaOverhead for Windows ®

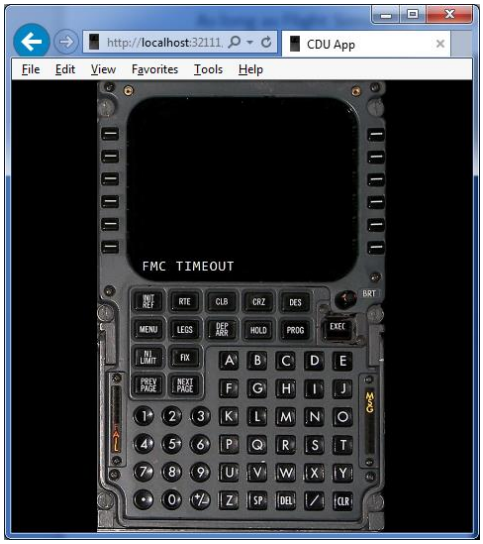
For the 737 NGX: Use the space-key to cycle between the **Main Overhead** and **Aft Overhead**. Alternatively, you can press the button on the top-right corner.



Space

11. Troubleshooting

If you are having trouble connecting with your mobile device, try your desktop's browser. Any modern browser should work. Use `'http://localhost:32111'` if the server is running on the same system.



Displaying the CDU using **Internet Explorer**

Displaying the CDU using **Firefox**

The aviaServer application has a built-in function to send a logfile if you need help. Simply right click the tray icon and choose 'Get Help'. Alternatively, you can also send me the `'LogFile.cdulog'` logfile via e-mail. See contact details at the bottom on how to reach me.

If you have trouble with the Remote Overhead Client, try and run it on the same PC as aviaServer and use 'localhost' as the connection address. If this works but it doesn't work on a networked PC, chances are high you might be running some 3rd party antivirus / firewall application that is blocking one or multiple required ports.

Advanced Settings

These settings can be changed by modifying the '`aviaServer.exe.config`' file in a text editor. Make sure you create a backup before making any changes. A valid .config file is needed for aviaServer to work correctly!

- You can disable the two-touch port switch by changing this value from 'False' to 'True. Default is 'False':

```
<setting name="DisableTwoClickPortChange" serializeAs="String">
  <value>False</value>
</setting>
```

- You can disable the gray click effect by changing this value from 'False' to 'True. Default is 'False':

```
<setting name="GlobalDisableCircleDrawing" serializeAs="String">
  <value>False</value>
</setting>
```

- You can modify the default port numbers of the individual services including the port of Flight Sim Labs' A320 Web Server as well as the Majestic Q400's UDP Ports:

```
<setting name="MJC8_Q400_Port_ToSim" serializeAs="String">
  <value> 49260</value>
</setting>
<setting name="Port_PMDG_NGX_CDUL" serializeAs="String">
  <value> 32111</value>
</setting>
…
```

Data Protection and Privacy

When sending a License Request, aviaServer will embed and encrypt hardware & installation specific data which is used to generate a system specific key.

Additionally, when sending a License Request directly through aviaServer, the email address entered will be stored to identify purchases for future reference.

When sending a cdulog – Logfile, additional data is embedded within the logfile to help troubleshooting, including file paths and hardware identifiers. No further personal data is transmitted or stored by aviaServer, either locally or remotely.

Automatic Update

aviaServer will check for a new version each time it is run. If a new version is available, it will be downloaded automatically and the next time you run aviaServer, it will be automatically updated to the latest version.

You can always check this page for the newest version:

https://www.aviaworx.com/download/

Frequently Asked Questions

Please visit the FAQ section of the forum. You can find it here:

http://www.avsim.com/topic/475080-faq/

Support & Contact:

If you have any questions / concerns / ideas, visit the dedicated support forum at AVSIM:

http://www.avsim.com/forum/742-remote-cdu-for-phone-tablet-official-support-forum

Alternatively, you can also contact me directly:

Mark Foti
mark@aviaworx.com

Changelog

See https://www.aviaworx.com/remote-server#changelog for details