



Apps for flight simulation.

aviaServer 2024

for aviaFlyByWire, aviaFlightMonitor, aviaCDU, aviaEFB and aviaOverhead

Welcome

aviaServer 2024 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 Flight Simulator 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 2020 or Microsoft Flight Simulator 2024
- .NET Runtime 4.8.1

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
- MD-82 CDU images and font provided by Leonardo SH, © Leonardo SH
- CRJ CDU images and fonts provided by Hans Hartmann
- MD-11 CDU images and fonts provided by TFDi Design, © TFDi Design
- 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>
- FontAwesome.WPF Library: <https://github.com/charri/Font-Awesome-WPF/>
- SharpDX Library: <https://github.com/sharpx/SharpDX>
- MessagePack Library: <https://github.com/neuecc/MessagePack-CSharp>

Instructions

1. Running the server

There is a single application called aviaServer2024.exe. 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.

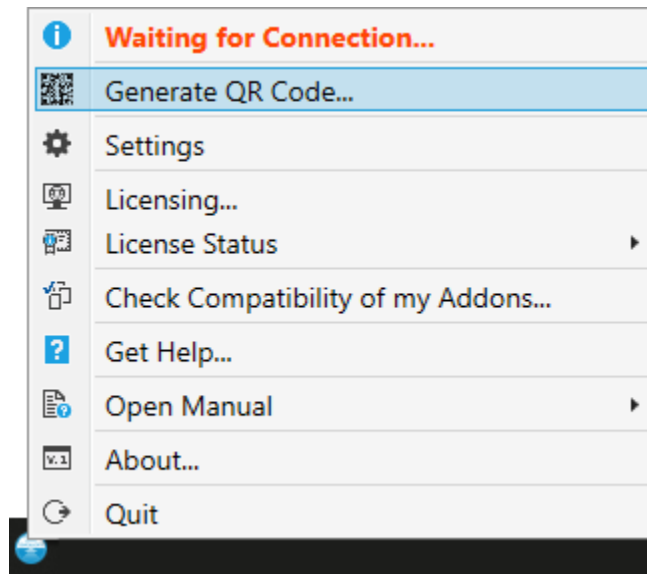
2. Establishing Connection

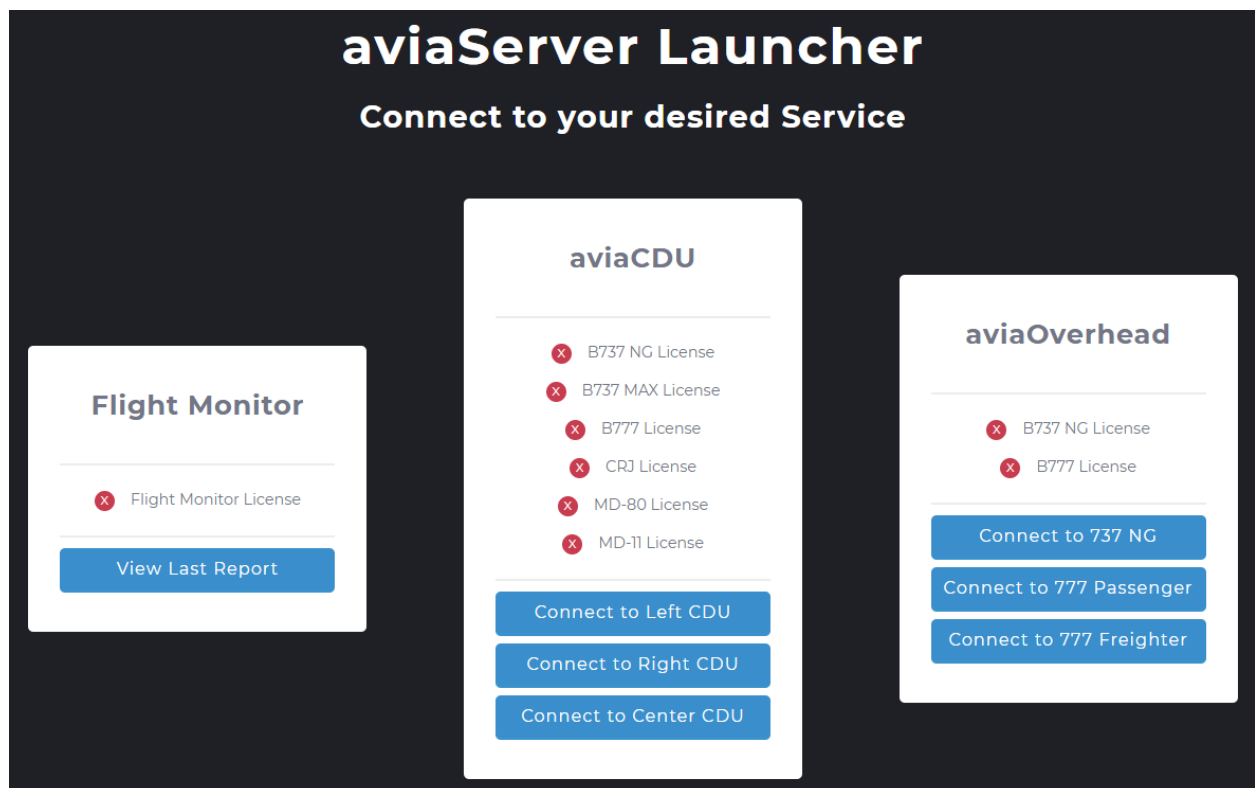
Now you are ready to connect your mobile device to the server. The easiest method is to access the 'Main Launcher'.

You can either input the appropriate URL manually:

`http://<your IP>:32300/launcher/launcher.html`

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.





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://www.howtogeek.com/196087/how-to-add-websites-to-the-home-screen-on-any-smartphone-or-tablet/>

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.

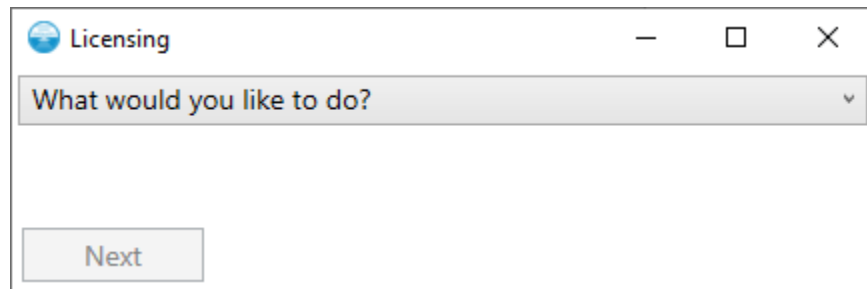
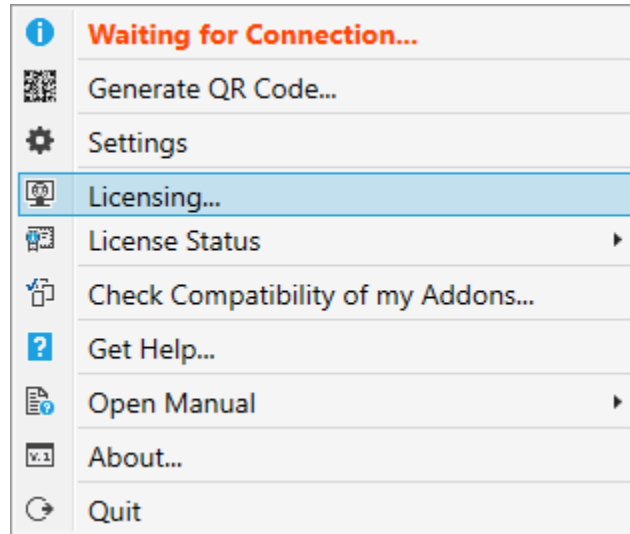
If you purchase through aviaServer, you will receive your licenses via email. Please note, this might take a while since it needs to be processed manually. See chapter 5 for details.

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:



Choose 'I have purchased an activation code and would like to activate it'

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

[illegible]

After pressing **Next**, 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 'Licensing' → 'I want to purchase or renew a license directly' (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.

Licensing

I want to purchase or renew a license directly

Paypal NameJohn Smith

E-Mail Address:john.smith@gmail.earth

Confirm E-Mail:john.smith@gmail.earth

Bundles:Mix and Match Pro

Selected	Category	Product	Licensed
<input checked="" type="checkbox"/>	CDU	B737 MAX (iFly)	No
<input checked="" type="checkbox"/>	CDU	B737 NG (PMDG)	No
<input checked="" type="checkbox"/>	CDU	B777 (PMDG)	No
<input type="checkbox"/>	CDU	CRJ (Aerosoft)	No
<input checked="" type="checkbox"/>	CDU	MD-11 (TFDi)	No
<input checked="" type="checkbox"/>	CDU	MD-80 (Fly the Maddog X)	No
<input type="checkbox"/>	Overhead	B737 NG (PMDG)	No
<input type="checkbox"/>	Overhead	B777 (PMDG)	No
<input type="checkbox"/>	Fly By Wire	Fly By Wire	No
<input type="checkbox"/>	Flight Monitor	Flight Monitor	No

Coupon Code:

Price:40.00 EUR/46.00 USD. You save 20.0%!(Doesn't take coupon code into consideration)

Next

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

The screenshot shows a 'Licensing' window with a dropdown menu set to 'I want to purchase or renew a license directly'. The form contains the following fields and options:

- Paypal Name: John Smith
- E-Mail Address: john.smith@gmail.earth
- Confirm E-Mail: john.smith@gmail.earth
- Bundles: A dropdown menu with 'PMDG Light' selected. Below it, a list of bundles is shown: 'Mix and Match Light', 'Mix and Match Pro', and 'PMDG Light' (highlighted).
- License(s): A table of license options for the 'PMDG Light' bundle.
- Coupon Code: An empty text field.
- Price: 45.00 EUR/51.75 USD. You save 10.0%! (Doesn't take coupon code into consideration)
- Next: A button to proceed.

License(s):	Item	Model	Available
<input checked="" type="checkbox"/>	CDU	B777 (PMDG)	No
<input type="checkbox"/>	CDU	CRJ (Aerosoft)	No
<input type="checkbox"/>	CDU	MD-11 (TFDi)	No
<input type="checkbox"/>	CDU	MD-80 (Fly the Maddog X)	No
<input type="checkbox"/>			
<input checked="" type="checkbox"/>	Overhead	B737 NG (PMDG)	No
<input checked="" type="checkbox"/>	Overhead	B777 (PMDG)	No
<input type="checkbox"/>			
<input type="checkbox"/>	Fly By Wire	Fly By Wire	No
<input type="checkbox"/>			
<input type="checkbox"/>	Flight Monitor	Flight Monitor	No

The following bundles are available:

- PMDG® Light – Includes all 3 CDUs for the PMDG 737, 747 and 777
- Mix and Match Light – Choose any 3 CDU licenses
- Mix and Match Pro – Choose any 5 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 License Request, 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 '**Licensing**' → '**I want to activate a downloaded license**' 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 has 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.

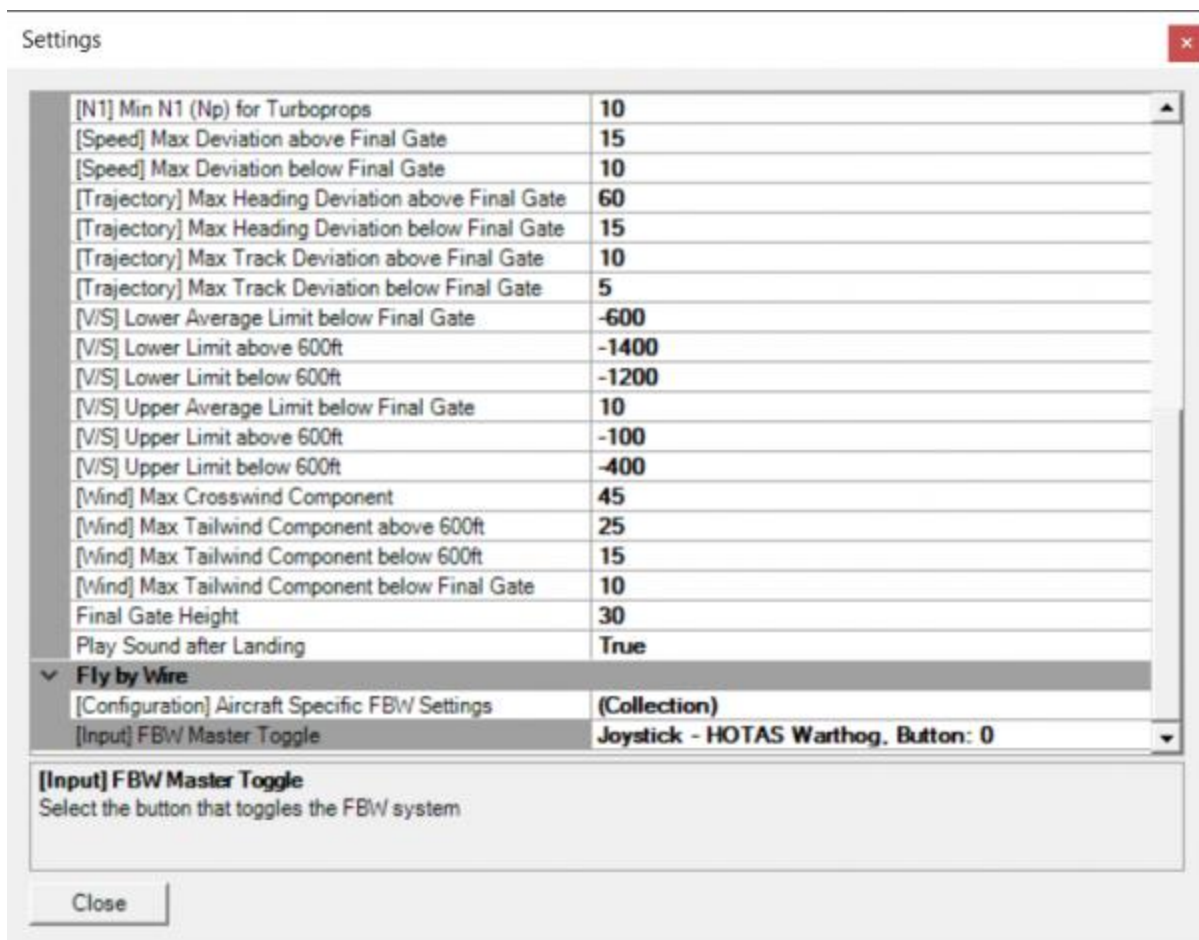
6. aviaFlyByWire

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:



The screenshot shows the 'Settings' dialog box of aviaServer. The 'Fly by Wire' section is expanded, showing various configuration options. The 'Input' section for the FBW Master Toggle is highlighted, showing a list of buttons and a 'Detect...' button at the bottom.

Setting	Value
[N1] Min N1 (Np) for Turboprops	10
[Speed] Max Deviation above Final Gate	15
[Speed] Max Deviation below Final Gate	10
[Trajectory] Max Heading Deviation above Final Gate	60
[Trajectory] Max Heading Deviation below Final Gate	15
[Trajectory] Max Track Deviation above Final Gate	10
[Trajectory] Max Track Deviation below Final Gate	5
[V/S] Lower Average Limit below Final Gate	-600
[V/S] Lower Limit above 600ft	-1400
[V/S] Lower Limit below 600ft	-1200
[V/S] Upper Average Limit below Final Gate	10
[V/S] Upper Limit above 600ft	-100
[V/S] Upper Limit below 600ft	-400
[Wind] Max Crosswind Component	45
[Wind] Max Tailwind Component above 600ft	25
[Wind] Max Tailwind Component below 600ft	15
[Wind] Max Tailwind Component below Final Gate	10
Final Gate Height	30
Play Sound after Landing	True
▼ Fly by Wire	
[Configuration] Aircraft Specific FBW Settings	(Collection)
[Input] FBW Master Toggle	Joystick - HOTAS Warthog. Button: 0
[Input] FBW Master Toggle Select the button that toggles the FBW system	

Close

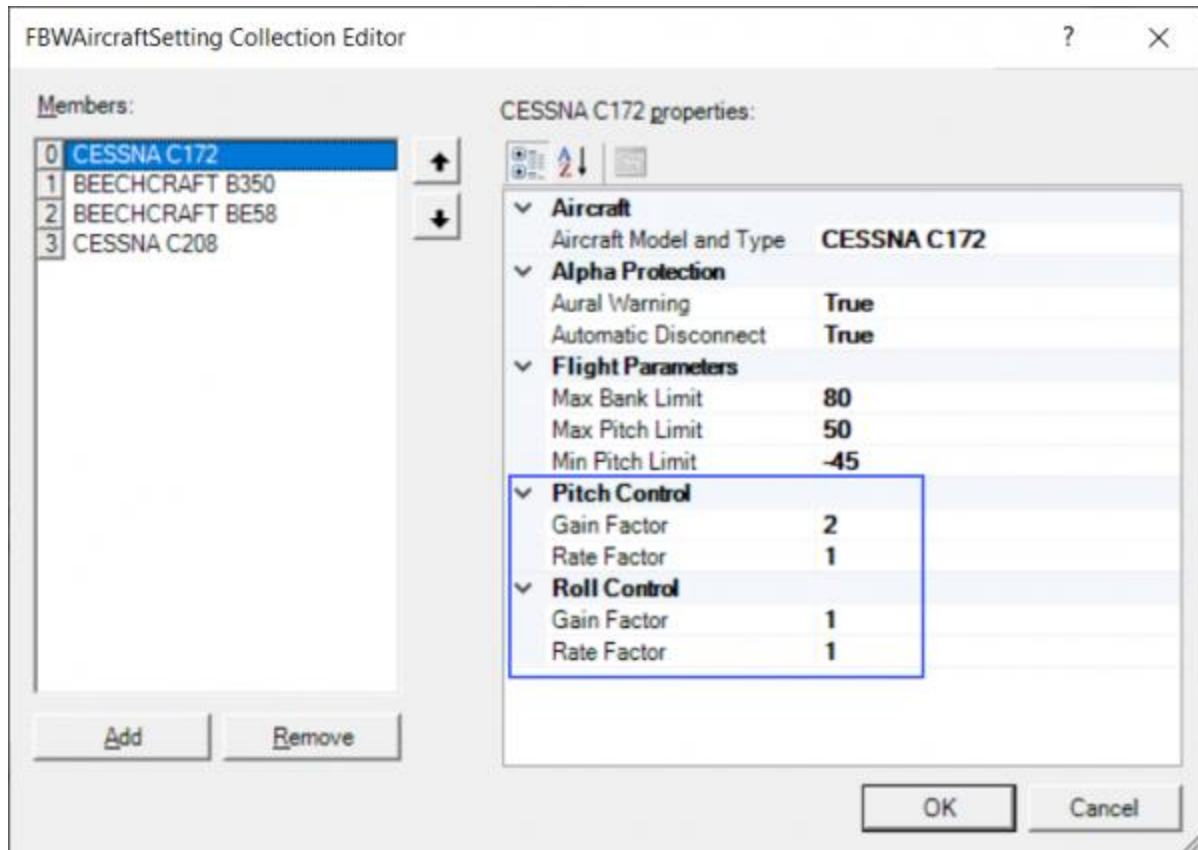
Hint: Scroll down to the end of the button list and choose 'Detect...' to easily select a button on any connected device!

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 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>:32300/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:

Settings ✕

▼ **Flight Monitor**

[Attitude] Max Bank Angle above Final Gate	20
[Attitude] Max Bank Angle below Final Gate	8
[Attitude] Max Pitch Angle above Final Gate	10
[Attitude] Max Pitch Angle below Final Gate	7
[Attitude] Min Pitch Angle above Final Gate	-3
[Attitude] Min Pitch Angle below Final Gate	0
[Configuration] Ignore Flaps Setting for Piston A/C	False
[Distance] Factor From centerline	0.35
[Distance] Max from Aiming Point	1000
[ILS] Max Glideslope Deviation above Final Gate	1
[ILS] Max Localizer Deviation above Final Gate	1
[ILS] Max Localizer Deviation below Final Gate	0.5
[Input] AP Disconnect Button	(None)
[Input] AT Disconnect Button	(None)
[Input] Primary Aileron Input Axis	(Auto Detect)
[Input] Primary Elevator Input Axis	(Auto Detect)
[Input] Secondary Aileron Input Axis	(None)
[Input] Secondary Elevator Input Axis	(None)
[N1] Min for Jets	35
[N1] Min N1 (Np) for Turboprops	10
[Speed] Max Deviation above Final Gate	15

[Attitude] Max Bank Angle above Final Gate
Maximum bank angle above the final gate height. Unit: [°]

Close

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:

- Aerosoft CRJ
- Fly the Maddog X MD-82/83/88
- iFly 737 MAX
- PMDG 737 NG, including the 737-600, 737-700, 737-800 and 737-900
- PMDG 777
- TFDi Design MD-11

Notes:

- 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). A pop-up will indicate which screen is currently active.

To do so, tap on one of the 2 (or 4 if a center CDU is available) mounting screws on the edge of the CDUs:





CDU:

- a. Left CDU
- b. Right CDU
- c. Center CDU
- d. Center CDU

Starting with aviaServer 2024, the server can be accessed through dedicated links for each CDU side. The respective CDU for the loaded addon will be activated automatically.

The links for the CDUs are:

- Left CDU: <http://<your IP>:32300/cdu/cduleft>
- Right CDU: <http://<your IP>:32300/cdu/cduright>
- Center CDU: <http://<your IP>:32300/cdu/cducenter>

9. 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:

- PMDG 737 NG and
- PMDG 777

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:32300>/ovhd/737/737.html`
777 Passenger: `http://<your IP:32300>/ovhd/777/777_pax.html`
777 Freighter: `http://<your IP:32300>/ovhd/777/777_freighter.html`
2. Run aviaOverheadClient as a separate application on a networked PC. The aviaOverhead Client communicates with aviaServer through port **32301**. 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 ↓



10. Troubleshooting

If you are having trouble connecting with your mobile device, try your desktop's browser. Any modern browser should work.



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.

A screenshot of a 'Get Help' dialog box. It contains the following fields and text: 'Your Name:' followed by a text input field; 'E-Mail Address:' followed by a text input field; 'Confirm E-Mail:' followed by a text input field; 'Describe your problem:' followed by a large text area; and '(Required)' below the text area. At the bottom, there is a note: 'Please enter your contact details so support can contact you directly. After you click 'Send', an e-mail will be sent to support@flightsimapps.com along with the logfile. You will be CC'd as well.' Below this note are two buttons: 'Send' and 'Cancel'.

If you have trouble with the aviaOverhead 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>
```

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/avia-server#changelog> for details