

Fergo Virtual CDU

For Microsoft Flight Simulator 2020 and PMDG 737

USER MANUAL

Last updated: 11/07/2022

<http://fcdu.fergonez.net>

1. INTRODUCTION

Fergo Virtual CDU (FCDU for short) is a virtual Control Display Unit for MSFS' PMDG 737 aircraft series. It allows you to remote control the plane's FMC externally with soft-buttons on the screen and have a 1:1 representation of the display in real time.

As it's accessible through your regular web-browser, you can use it in a second monitor or any other device connected to your home network, such as a phone or tablet.

The software consists of two fragments:

Server: Windows software (*Fergo CDU.exe*) that connects to MSFS, interfaces with the aircraft, retrieves CDU data and send button commands through the SimConnect interface. The server must be run in the same computer as MSFS.

Client: a web page, accessible with any modern browser, that connects to the server and acts as the front-end of the remote CDU. This is where all the interaction takes place. The client can be accessed on any device on the same network (or even on the same computer as the server), as it's simply a web page.

2. REQUIREMENTS AND INSTALLATION

You will need the following software and components to properly use Fergo Virtual CDU:

- Microsoft Flight Simulator 2020 – Steam or Microsoft Store version
- PMDG 737 for Microsoft Flight Simulator 2020
 - Versions: 3.00.0024, 3.00.0025
- Microsoft .NET Framework version 4.6.1 or above (Windows 10 version 1511 includes this by default)
- Firefox, Chrome or Edge to access the remote CDU

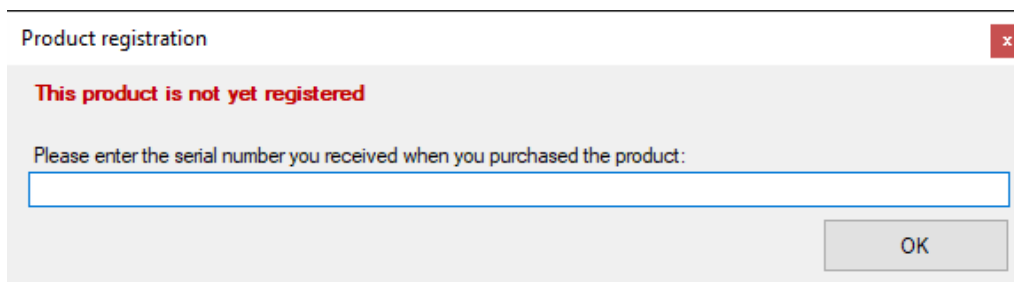
Installation is very uncluttered and straightforward. Simply extract the contents of the ZIP into a folder of your choice (**not inside the Community folder**) and run **Fergo CDU.exe**.

3. FIRST TIME LAUNCH

When using Fergo Virtual CDU for the first time, you'll be prompted with the following steps:

- 1) Activate the product

FCDU uses an offline and hassle-free activation process. Just enter the serial number you were given when purchasing the product into the activation form and you are good to go.

A screenshot of a 'Product registration' dialog box. The title bar says 'Product registration' with a red close button. The main area has a red message: 'This product is not yet registered'. Below this, it says 'Please enter the serial number you received when you purchased the product:' followed by a text input field. At the bottom right is an 'OK' button.

Product registration

This product is not yet registered

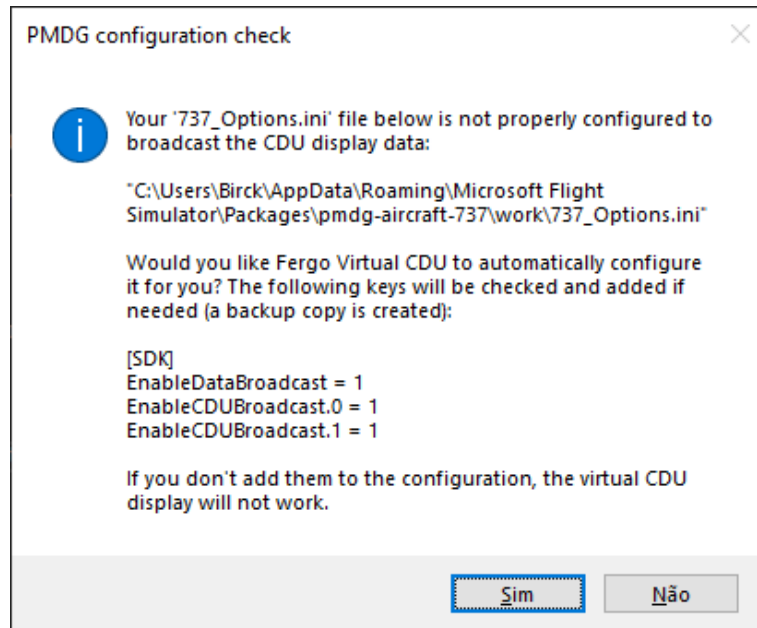
Please enter the serial number you received when you purchased the product:

OK

2) Check for proper PMDG configuration

FCDU will then check if the PMDG configuration file **737_Options.ini** is properly configured to broadcast the CDU display. The program will automatically look for the file and add the required entries. Before making any modification, a backup copy **737_Options_backup.ini** is created in the same directory as the original file.

It's highly recommended that you let FCDU automatically change this file for you. If not properly configured, the CDU display won't work.

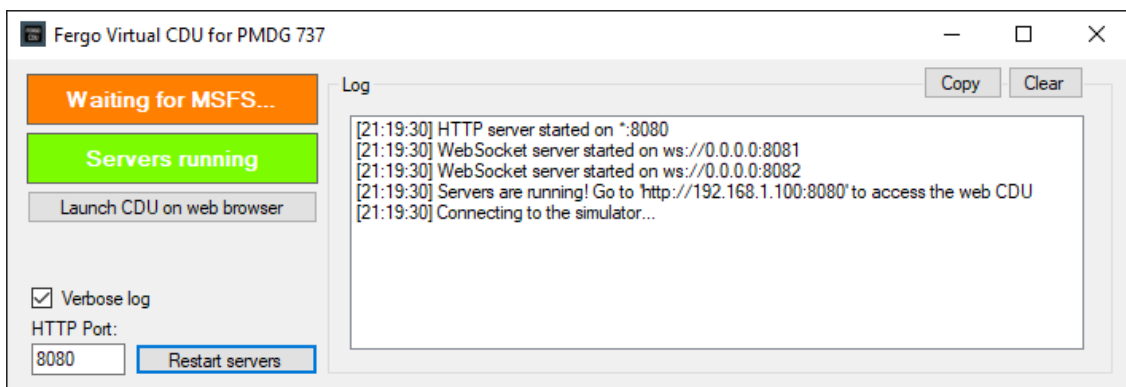


3) Firewall rules

FCDU will automatically check and add firewall rules for the HTTP and web socket ports required for the server to run properly. **If the rules can't be automatically added, Windows will also ask you to allow incoming connections to the software. This should be allowed, otherwise FCDU client won't be able to connect to the server.**

4. USAGE

After the initial steps above are completed on the first launch, you'll be greeted with the software's main screen, which looks like this:



FCDU is basically config-free. Simply run the program and you are good to go!

You can access the remote CDU using the button **Launch CDU on web browser**, which will execute the web client in your default browser, or by manually typing one of the following addresses:

- a. **If you want to access the client on the same computer as the server:**

<http://localhost:8080/> or <http://127.0.0.1:8080/>

- b. **If you want to access the client from another device connected on the same home network (phone, tablet, etc.):**

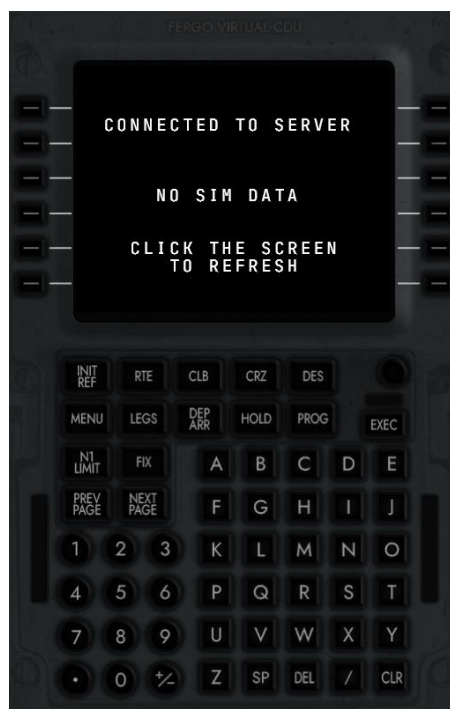
In this case, you need to know your local IP address. FCDU already helps you in this regard and the address you need to type into the device's web-browser is shown in the log window. In the above example, if I wanted to use my phone as the CDU, I'd open its browser and type:

<http://192.168.1.100:8080>

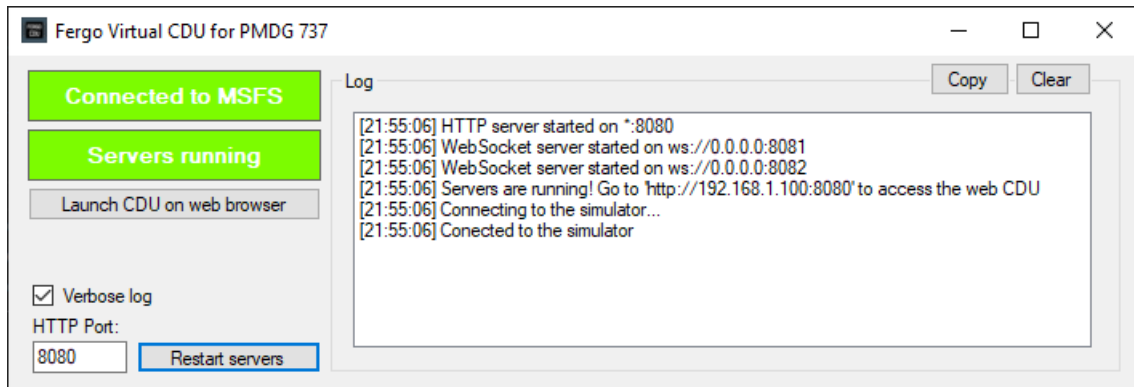
By default, the server runs on port 8080 (HTTP) and 8081 (WebSocket). You can change this by simply modifying the **HTTP Port** field and clicking the **Restart servers** button. The WebSocket port is always automatically set to one number above the HTTP port. When changing the port, always remember to also change it in the web addresses after the colon, following the pattern <http://IP:PORT>

The **Verbose log** checkbox is more of a debug tool. If checked, it shows every event that is sent and received by the server.

In the image above, FCDU was launched without the simulator running (orange box displaying **Waiting for MSFS...**). You can still access the client using the IP addresses above, but you won't receive any simulator data:



When FCDU detects that MSFS is running, it will show both boxes on the left as green. That means that all connections were successfully established, and the software is running properly.



After you are in-game and inside the cockpit of your PMDG 737, with the CDU properly powered on, you should be able to see the virtual CDU in your web browser, replicating what is shown in the game's CDU.



Fergo Virtual CDU mimic the in-game aircraft and only display data if the in-game CDU is also powered on and showing data on its screen.

The plane needs to be at least battery powered.

5. TROUBLESHOOTING

a) The application won't start or is showing a message about .NET framework not being installed

Download and install .NET Framework from the link below:

<https://dotnet.microsoft.com/en-us/download/dotnet-framework/net461>

Newer versions should also work just fine

b) Why Fergo Virtual CDU needs administrative privileges to run?

This is needed because FCDU will automatically check and add custom rules into Windows Firewall to guarantee proper client-server communication. Windows requires elevated privileges to perform this task.

c) When I try to access the CDU in my web browser, the page won't load

- 1) Make sure the green box saying **Servers running** is shown.
- 2) Try changing the **HTTP Port** to something else and restart the server (make sure you also change the port when typing the IP and port into the address bar of the browser).
- 3) Make sure you are typing the IP addresses correctly.
- 4) Try to use the button **Launch CDU on web browser**.
- 5) If you are not running the client in the same computer as the server, make sure you are typing the local IP address of your machine instead of *localhost* or *127.0.0.1* (the correct IP address is shown in the log window).

d) FCDU client only shows "CONNECTED TO SERVER – NO SIM DATA"

The client will only start displaying data after you are inside the plane and the aircraft is powered. Make sure the in-game CDU is displaying something on its screen and try refreshing the client page (either by clicking on the display or by pressing F5)

e) I tried step D above, but I'm still not receiving any data

PMDG needs a special configuration to enable the broadcast of CDU data. FCDU check this when launching, but if this fails, you can try to change this manually, following these steps:

- 1) Open the file **737_Options.ini** with Notepad

For the Steam version, this file is located in:

C:\Users**USERNAME**\AppData\Roaming\Microsoft Flight Simulator\Packages\pmdg-aircraft-737\work

For the Microsoft Store version, the file is located in:

```
C:\Users\USERNAME\AppData\Local\Packages\Microsoft.FlightSimulator_8wekyb3d8bbwe\LocalState\packages\pmdg-aircraft-737\work
```

2) Add the following lines to the end of the file:

```
[SDK]
EnableDataBroadcast=1
EnableCDUBroadcast.0=1
EnableCDUBroadcast.1=1
```

3) Save the file and restart the sim

f) I'm getting the message "SimConnect message: Client connected but PMDG not loaded" on the log

You are trying to interact with the CDU without being in-game. FCDU will only establish communication with the aircraft after the plane is loaded.