

ULTRA-REALISTIC FLIGHT SIMULATION

EFIS APP

FOR XPLANE
10



MANUAL

Laminar
Research 

EFIS App Manual

Laminar Research

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About This Manual

This is version 10.01 of the manual to EFIS App, last updated May 9, 2012. The latest version of the manual will always be available for download [from the X-Plane.com web site](#).

Throughout this text, there will be cross-references to other parts of the manual, as well as hyperlinks to web pages. These will be formatted as gray and blue text, respectively. For instance, clicking the following gray reference to this section will bring you to the top of the current page, while clicking the blue one will open a web browser to X-Plane.com:

About This Manual, [X-Plane.com](#)

The Table of Contents is also cross-referenced; click on the section you're looking for to travel there instantly. Alternatively, the PDF's bookmarks can be used to navigate quickly through the manual. If you are using the Adobe Acrobat or Apple Preview PDF viewers, you can display these bookmarks by clicking the buttons shown in Figure 1, respectively.



Figure 1: Buttons to show bookmarks in Acrobat (left) and Preview (right) PDF viewers

Introduction to EFIS App

EFIS App is a program from Laminar Research used to simulate an electronic flight instrument system (EFIS). It connects to a copy of X-Plane to very accurately simulate the current Cirrus and Eclipse primary flight display (PFD) and multi-function display (MFD). This lets our users build a pretty accurate Cirrus or Eclipse

EFIS App runs on its own computer and monitor. Its system requirements are very low; a 1 GHz processor with 512 MB of RAM and a cheap video card are just fine. Its interface represents an Avidyne (typically Cirrus or Eclipse) PFD or MFD when connected with an Ethernet cable to another computer running a copy of X-Plane.

Using EFIS App, you can finally have a very high-fidelity, high-resolution, stand-alone monitor for the Avidyne PFD and MFD running with X-Plane! You can even connect a USB human interface device (like a joystick or custom-built controls) to control the copy of EFIS App, allowing you to build EFIS interfaces that look and act just like the real thing.

Connecting EFIS App and X-Plane

Using EFIS App is as simple as:

1. Downloading the latest version of EFIS App,
2. Plugging in your Professional-Use USB Keys to both your computer(s) running EFIS App and your computer(s) running X-Plane,
3. Launching X-Plane and EFIS App on your computers,
4. Giving your copy or copies of X-Plane the IP address of the computer(s) running EFIS App, and
5. Setting up the instruments in EFIS App to your liking.

Note that in order to use EFIS App, you *must* have a Professional-Use USB Key (previously known as a Level II or Level III simulator key), [available at X-Plane.com](http://www.x-plane.com). This is a small, blue USB stick with the word “HASP” on it. Plugging this USB key into your computer will unlock the features of X-Plane Professional, including the frame rate and flight control check (required for FAA certified simulators) and EFIS App. For more information on X-Plane for Professional Use, see [our website](#).

Additionally, note that when using a USB key with a multi-computer simulator, all computers that will be networked together for use with X-Plane must use the *same* USB key.

For instance, if you have one computer displaying a cockpit view, two computers displaying external visuals, and one computer running EFIS App, you need a total of *four* Professional-Use USB Keys; you could not mix-and-match the Professional-Use USB Keys with the approximately \$30 home-use keys, and you could not mix-and-match X-Plane 9’s Level II and Level III USB keys. However, you do *not* need multiple copies of the X-Plane discs. You could use a single set of X-Plane DVDs to install the simulator and scenery on your three computers running X-Plane.

2.1 Downloading EFIS App

To download EFIS App, visit [the EFIS App page](#) at X-Plane.com and click the link near the bottom of the page. This is approximately a 340 MB download.

When the download finishes, open the ZIP file and extract (copy) its contents to an easy-to-access location, like the Desktop. Because EFIS App runs completely separately from X-Plane, you do not need to have X-Plane installed in the same location as EFIS App—you don’t need X-Plane installed at all on the computer that will run EFIS App.

2.2 Connecting X-Plane to EFIS App

As noted previously, EFIS App is intended to be run on its own computer. That is, it is intended that you have at least two computers networked together, with one or more computer running EFIS App and one or more computers running X-Plane.

Before beginning, make sure that the version of X-Plane you are using matches the version of EFIS App. For instance, if you are using EFIS App v9.70, make sure you also have X-Plane updated to version 9.70.

Basic Networking

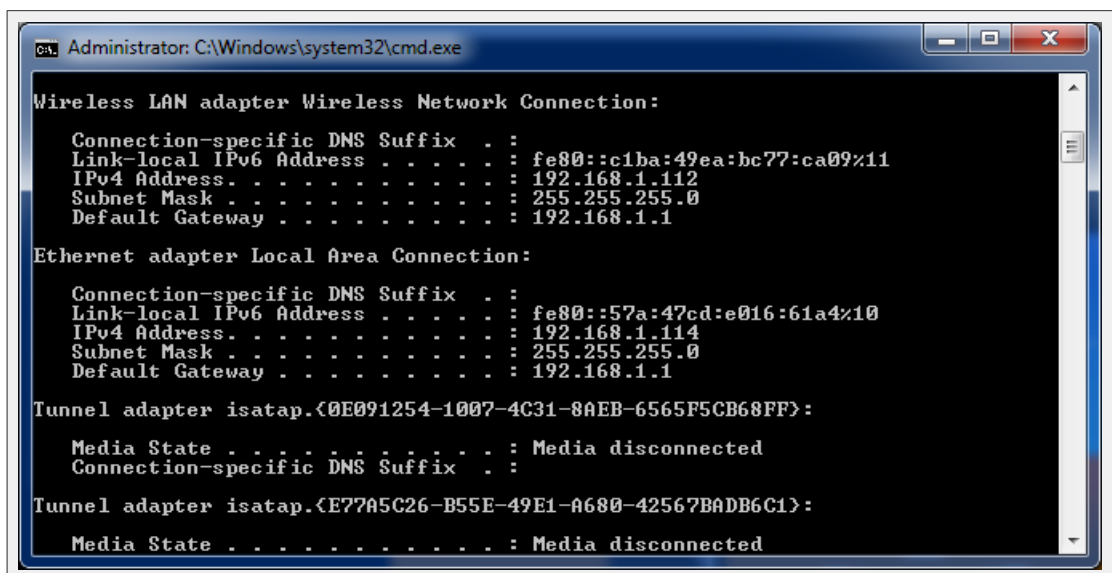
In order for X-Plane to communicate with EFIS App, your computers must be on the same network and they must be able to communicate with one another over port 49000 (by default—you can change the ports used if you like). In most cases, this basic networking setup is performed as follows:

1. Connect both computers to the same network router using Ethernet cables.
2. Launch X-Plane or EFIS App on the computers.
3. If a dialog box appears asking whether to allow X-Plane or EFIS App to communicate over the network, select the “allow” option.

Finding the IP Address of the Computer Running EFIS App

In Windows

With the basic networking set up, you will need to find the IP address of the computer running EFIS App. To find the IP address of a computer running Windows, do the following:



```
Administrator: C:\Windows\system32\cmd.exe

Wireless LAN adapter Wireless Network Connection:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::c1ba:49ea:bc77:ca09%11
    IPv4 Address. . . . . : 192.168.1.112
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1

Ethernet adapter Local Area Connection:

    Connection-specific DNS Suffix  . : 
    Link-local IPv6 Address . . . . . : fe80::57a:47cd:e016:61a4%10
    IPv4 Address. . . . . : 192.168.1.114
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.1.1

Tunnel adapter isatap.{0E091254-1007-4C31-8AEB-6565F5CB68FF}:

    Media State . . . . . : Media disconnected
    Connection-specific DNS Suffix  . : 

Tunnel adapter isatap.{E77A5C26-B55E-49E1-A680-42567BADB6C1}:

    Media State . . . . . : Media disconnected
```

Figure 2.1: Finding the computer’s IP address in Windows



Figure 2.2: Finding the computer’s IP address in Mac OS X

1. Click on the Start menu, type “cmd” (without quotes), and press Enter. This will launch a command prompt.

If you are using Windows XP rather than Windows Vista or 7, you will need to instead launch a command prompt by pressing Windows+R on the keyboard (that is, the Windows key and the ‘r’ key, simultaneously).

2. In the command prompt window that launches, type “ipconfig” (again, without quotes).
3. Scroll through the output that the command prompt produces to find the line that reads “Ethernet adapter Local Area Connection” (if you are connected to the network using an Ethernet cable) or “Wireless LAN adapter Wireless Network Connection” (if you are connected to a wi-fi network).
4. In the appropriate section of the output (found in the previous step), find the line that reads “IPv4 Address” and copy that the address listed. For instance, in Figure 2.1, the computer has an IP address of 192.168.1.114 on the wired (Ethernet) network and an IP of 192.168.1.112 on the wireless network.

In Mac OS X

To find the IP address of a Mac, do the following:

1. Click the Apple menu in the upper left of the screen, in the Menu Bar.
2. Click System Preferences.
3. In the System Preferences window, click Network.
4. Click Ethernet or Wi-Fi (whichever you are using to connect to the computer running X-Plane) from the left-hand pane.
5. On the right side of the window, you should see text that reads “[*A connection*] is connected to [*a network*] and has the IP address [*123.456.789.012*].” Write down the IP address indicated. For instance, in Figure 2.2, the computer has an IP of 192.168.1.110.

Giving X-Plane the IP Address of EFIS App

Having found the IP address of the computer you are using to run EFIS App (per the instructions in the previous section), we can connect X-Plane to EFIS App.

1. Ensure that all computers that will be networked together (both those running EFIS App and those running X-Plane) have the appropriate professional-use USB key plugged in.
2. Launch X-Plane and EFIS App on their respective computers.
3. In X-Plane, open the Network Connections dialog box by moving your mouse to the top of the screen, clicking Settings, then clicking Net Connections.
4. Click the EFIS tab at the top of the window (or the Advanced tab if you are using X-Plane 9 rather than X-Plane 10).
5. Check one of the boxes labeled “IP of desktop running EFIS-App,” found near the center of the dialog box.
6. In the left-most text box that appears, type the IP address that you found previously for the EFIS App computer. The other text box should read “49000”; this is the port number that X-Plane will use, which should generally be left at the default.
7. Close the Network Connections dialog box, either by pressing Enter or by clicking one of the Xs in the top corners. EFIS App should begin displaying instrument data corresponding to the aircraft you’re flying in X-Plane.

At this point, the simulator is ready for use.

Troubleshooting Network Issues

If you have trouble with networking between X-Plane and EFIS App for iPad, check the following:

- Ensure that the ports used by X-Plane (ports 49,000 through 49,002) are not being blocked by any firewall. A firewall may be software running on your computer (e.g., Windows’ built-in firewall) or a part of your network hardware (e.g., built into your router).
- Ensure that the computer running X-Plane is on the same subnet as your iPad. Note that it is very common for corporate networks to split their wired and wireless networks into different subnets, so it may help to connect your computer to the wireless network like your iPad.

Because of the wide variability in network setups, if you have trouble networking X-Plane and EFIS App together, we recommend you consult an IT professional.

Configuring EFIS App

EFIS App *can* be used as it is configured out-of-the-box, with an Avidyne PFD and MFD, and an array of standby analog instruments. However, most users will want to customize the instrument panel, and perhaps use a USB device to control the instruments.

All configuration of EFIS App takes place in the Preferences dialog box, seen in Figure 3.1. To open the Preferences dialog, move the mouse to the top of the screen, click View, and click Prefs.

3.1 Customizing the Instrument Panel

You can place up to 10 instruments in the EFIS App panel. To add or remove an instrument to the panel, do the following:

1. Open the Preferences dialog box (by moving the mouse to the top of the screen, clicking View, and clicking Prefs).
2. Click the arrow next to one of the drop-down boxes highlighted in blue in Figure 3.1.
3. Select one of the available instruments (such as the Avidyne PFD, standby airspeed indicator, or annunciator panel). To remove an instrument, simply select “none” at the top of the list.

Having added an instrument to the panel, you can position it in the panel using the **x**, **y**, and **size** controls. The parameters here represent the distance in pixels to shift the instrument’s center from the bottom-left of the window. For instance, if you were using EFIS App in a window that was 1,500×1,000 pixels, an (x, y) position of (750, 500) would place an instrument directly in the center of the screen. Contrastingly, a position of (0, 0) would place the instrument’s center in the bottom left corner, so only the upper-right portion of the instrument would be visible. The **size** parameter, likewise, controls the instrument’s size as a ratio to the default. Thus, an instrument with its **size** set to 2.00 would be twice as large as its default.

3.2 Using USB Controls with EFIS App

To use a USB human interface device with EFIS App, make sure the USB device is plugged in before launching EFIS App. Note that your device must be plugged into the computer running EFIS App; you will not be able to control EFIS App using USB controls connected to your X-Plane computer.

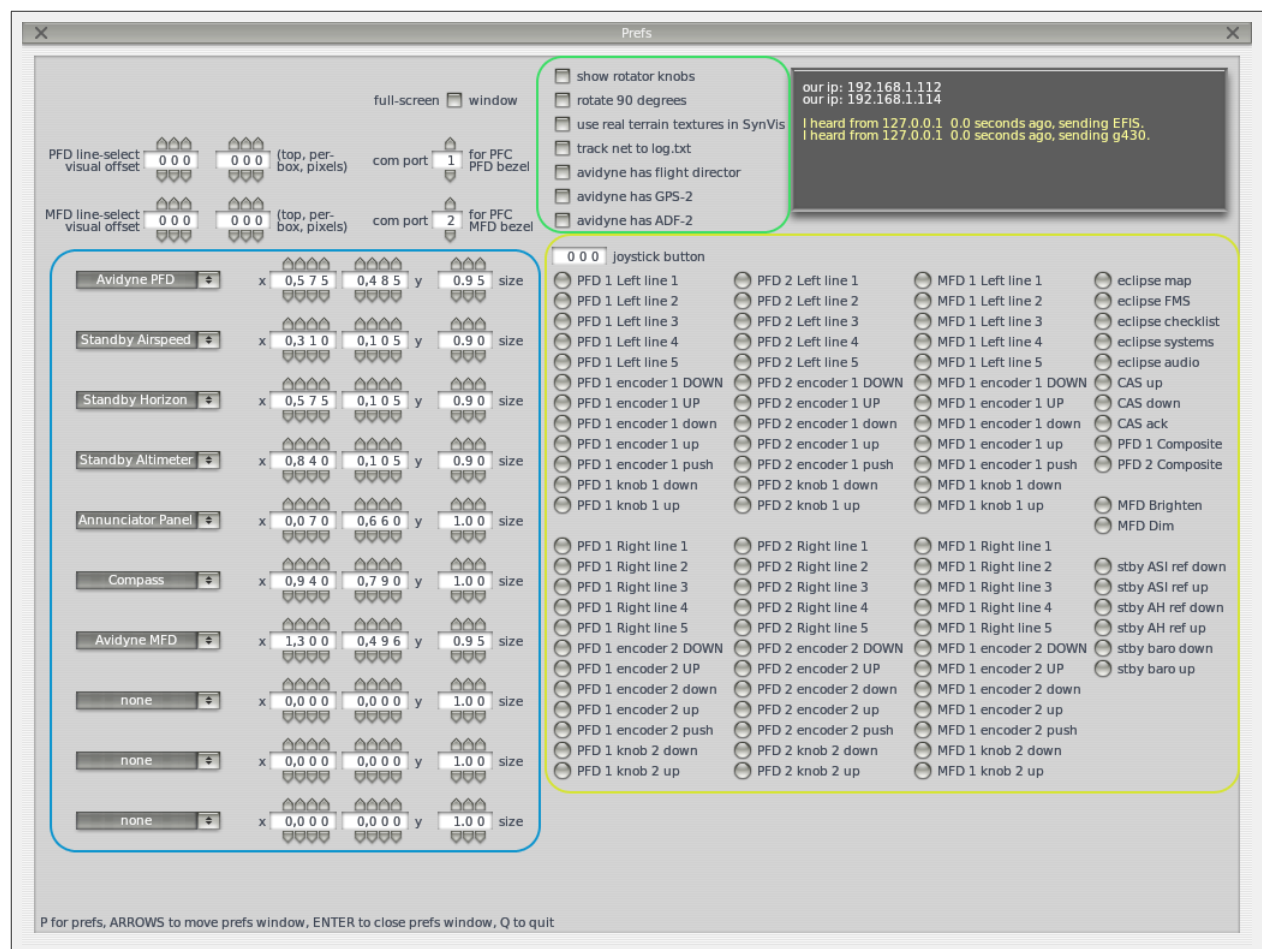


Figure 3.1: EFIS App's Preferences dialog box, showing the instrument placement configuration (highlighted in blue), the joystick configuration (highlighted in yellow), and the general configuration options (highlighted in green).

With your USB device connected and EFIS App running, open the preferences (either by moving the mouse to the top of the screen, clicking View, and clicking Prefs, or by pressing the P key on the keyboard). The lower right portion of the dialog box that appears (highlighted in yellow in Figure 3.1) is just like the Buttons: Basic tab in X-Plane. To assign the buttons of your device to functions in EFIS App, do the following:

1. Press the button whose function you want to change.
2. Click the radio button next to the function you want this button to have.
3. Repeat steps 1 and 2 for each button you wish to assign.

Once again, press the button *first*, then click the function you want that button to have.

3.3 Setting the Miscellaneous Preferences

In addition to choosing which instruments are displayed in the panel, you can customize a few miscellaneous preferences, which are highlighted in green in Figure 3.1.

To display rotator knobs on-screen beneath the PFD and MFD, check the “show rotator knobs” box in the preferences. These can be used for dialing in a number of settings, and are an alternative to using USB controls or keys on the keyboard (including E, R, D, and F) for these settings.

To rotate the entire display 90 degrees (useful if you want a display significantly longer than it is wide), check the “rotate 90 degrees” box in the preferences.

Checking the “use real terrain textures in SynVis” box will have EFIS App get the terrain textures it displays in the synthetic vision (as found in, for instance, the Cirrus Jet Concept display) from X-Plane, giving a much more realistic view in the instrument panel.

To keep a log the network transmissions between EFIS App and X-Plane, check the box labeled “track net to log.txt.” This will add network data to the log.txt file in your EFIS App directory.

To add flight director “wings” to your Avidyne PFD, check the box labeled “Avidyne has flight director.” Likewise, to add the ability to interface with a second GPS (*if* the aircraft model you are flying has a second GPS), check the “Avidyne has GPS-2” box. To add a second ADF, with the same caveat, check the “Avidyne has ADF-2” box.