

## HttpX and EarthProxy (GE View) Installation

### OVERVIEW

#### One-time installations

- Install HttpX.dll and XMLTools.dll modules
  - Copy HttpX.dll and XMLTools.dll to Modules folder
  - Edit dll.xml file
- Install Compound\_Rotation.xml in each aircraft you fly or in MiniPanel
  - Copy Compound\_Rotation.xml to Panel folder
  - Edit panel.cfg

#### Run GE View

1. Start Flight Simulator
2. Double click EarthProxy.exe to start GE View

### INSTALLATIONS

#### HttpX.dll

1. Copy HttpX.dll v.2.0 into FSX or P3D's Modules folder. If this folder does not exist, it is recommended to create one in the main FSX or P3D directory.

2. Locate the dll.xml file which should be in:

FSX:

C:\Users\username\AppData\Roaming\Microsoft\FSX\

or

C:\Documents and Settings\username\Application Data\Microsoft\FSX\

P3D:

C:\Users\username\AppData\Roaming\Lockheed Martin\Prepar3D v2\

or

C:\Documents and Settings\username\Application Data\Lockheed Martin\Prepar3D v2\

3. Edit dll.xml to add the following within <Simbase.Document>

```
<Launch.Addon>  
  <Name>HttpX</Name>  
  <Disabled>False</Disabled>  
  <ManualLoad>False</ManualLoad>  
  <Path>Modules\HttpX.dll</Path>  
  <DllStartName>module_init</DllStartName>  
  <DllStopName>module_deinit</DllStopName>  
</Launch.Addon>
```

If dll.xml is absent in P3D, copy the example dll.xml file shown at the bottom of this document and paste into the Lockheed Martin\Prepare3D v2 folder, as above.

4. Start Flight Simulator in windowed, non-Full Screen view (Views>Full Screen toggle OFF). If you like, change the Cockpit View Zoom factor to 0.50 (the + and – keys on your keyboard will do this) to more closely match Google Earth zoom.

5. HttpX automatically loads each time Flight Simulator is opened.

### **XMLTools.dll**

To enable 360 degree pan view capability in GE View, Tom Aguilo's XMLTools for FSX or P3D must be installed. XMLTools can be freely downloaded from the FSDeveloper Resources site. Follow installation instructions contained in the download (it's similar to HttpX.dll installation).

XMLTools 2.01 for FSX:

<http://fsdeveloper.com/forum/resources/xmltools-2-01-xml-expansion-module-for-fsx.148/>

XMLTools3D for P3D v3.x:

<http://fsdeveloper.com/forum/resources/xmltools3d-for-p3d-v3-x.168/>

## Compound\_Rotation.xml

Compound\_Rotation.xml is a small gauge that calculates Quaternion rotations necessary to orient the Google Earth camera while panning. It's a background calculation gauge that won't take up space on your cockpit panel. Tom Aguilo's XMLTools module (XMLEvents class) is used to capture the HAT switch azimuths needed for the rotations. If XMLTools is not installed, GE View will still operate, but without pan view capability. In that case, the Google Earth view will always look forward.

The essential entry in Compound\_Rotation.xml is line 19:

```
54321 (>C:HTTP:port)
```

This line must be processed to enable EarthProxy communication with Flight Simulator. Port number choice is arbitrary but must be the same as used in the EarthProxy.exe application interface.

## STANDARD INSTALLATION

1. Create a new folder named **GE VIEW** within the aircraft's Panel folder. Place Compound\_Rotation.xml in that folder.
2. Edit the aircraft's **Panel.cfg** file to establish a separate Window for the gauge. As an example:

```
[Window Titles]
.
.
.
Window15=GE VIEW
```

using whatever Windows number comes next (15 in this example).

3. Below the other 2D Windows in Panel.cfg, add the GE VIEW window parameters:

```
[Window15]
position=0
size_mm=110,90
visible=1
window_size_ratio=1.00
gauge00=GE VIEW!Compound_Rotation, 0, 0, 110, 90
```

It's best to not set `visible=0` because EarthProxy will not function until the GE VIEW window is visible, allowing the GEViewInit initialization sequence (lines 16-21) to be processed.

## MINIPANEL INSTALLATION

Users might find that installation of Compound\_Rotation.xml in the MiniPanel folder is a little simpler, a little faster, than adding it to each aircraft. The downside is that any custom minipanel for an aircraft will be disabled (refer to step 4, below).

1. Unzip MiniPanel.cab. It will be found in the Gauges\MiniPanel folder.
2. Place Compound\_Rotation.xml in the MiniPanel folder.
3. Edit MiniPanel.cfg by adding the lines in red, below:

```
[MiniPanels]
MiniPanel00=Mini Panel Gauges
MiniPanel03=GE VIEW

[MiniPanels Jet]
MiniPanel01=Mini Panel Gauges for Single Engine Aircraft
MiniPanel03=GE VIEW

[MiniPanels NoVacuum]
MiniPanel02=Mini Panel Gauges for Primitive Aircraft
MiniPanel03=GE VIEW
```

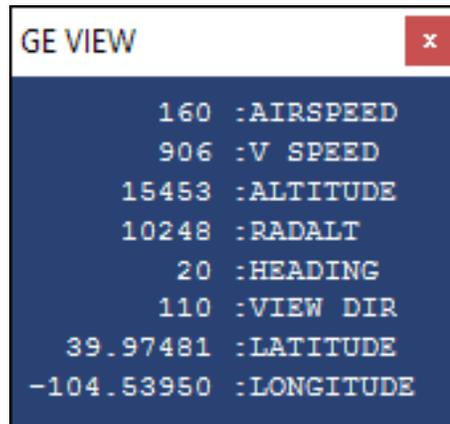
At the bottom of MiniPanel.cfg, add:

```
[MiniPanel03]
position=4
size_mm=110,90
visible=1
window_size_ratio=1.00
gauge00=MiniPanel!Compound_Rotation, 0, 0, 110, 90
```

4. In each aircraft you fly using GE View, edit its panel.cfg to disable the MiniPanel window, if it exists, by adding "//":

```
[Window Titles]
.
.
.
//Window07=Mini Panel
```

## GE VIEW DISPLAY



Compound\_Rotation.xml generates a small display of some flight parameters that may be useful to see while viewing the Google Earth screen. Right click on the GE VIEW display window, Undock it, then drag it onto the Google Earth Window.

If the GE VIEW display isn't wanted, it may be closed *after* it has been initially displayed (confirming that the GViewInit sequence was processed).

If you do not want the GE VIEW application to load at all, comment out the GE VIEW window in the [Window Titles] section of panel.cfg:

```
//Window15=GE VIEW
```

IF THE GE VIEW WINDOW DOES NOT APPEAR WHEN THE AIRCRAFT LOADS

In the event that the GE VIEW display does not appear when the aircraft loads, then from the Flight Sim menu bar, select Views > Instrument Panel > GE VIEW and make sure that GE VIEW is selected (checked), as shown in the picture below

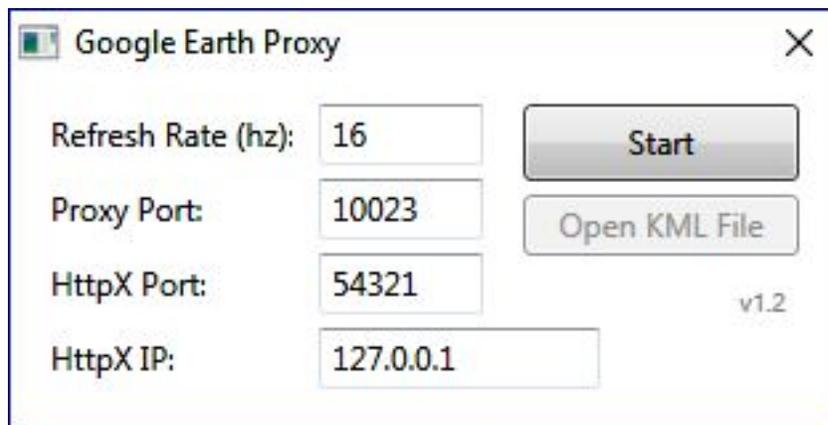


The GE VIEW display should then appear which indicates the GViewInit initialization sequence is complete.

## OPERATION

### EarthProxy.exe v1.2

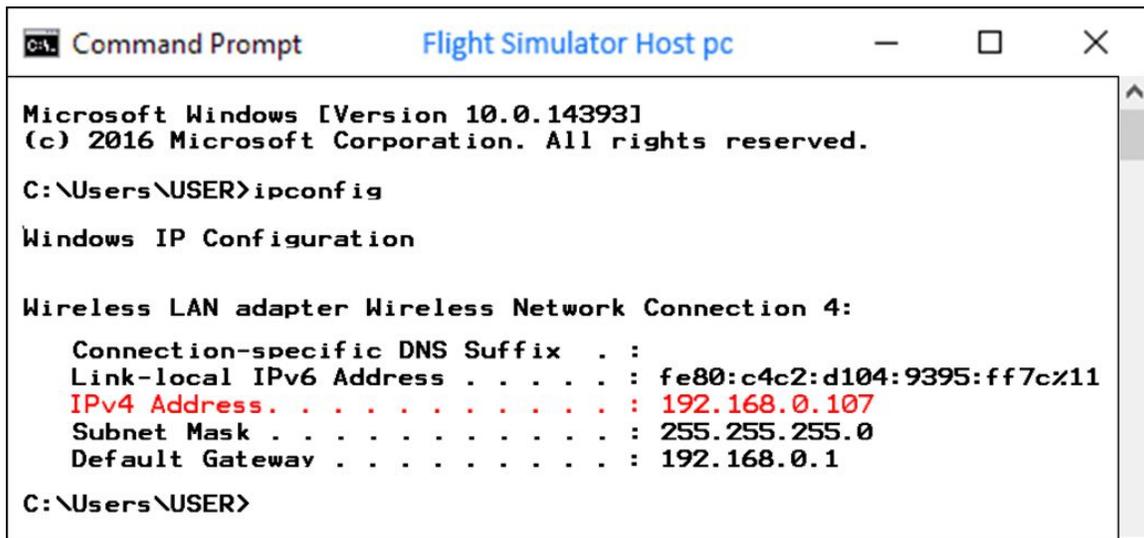
1. The EarthProxy.exe file can reside anywhere, for example, your Desktop.
2. Double click **EarthProxy.exe** to open the application.



- ❑ **Refresh Rate:** Frequency at which HttpX queries FlightSim. Change if desired, but values over 18 Hz won't improve smoothness. Default is 16 Hz.
- ❑ **Proxy Port:** The EarthProxy port. Default is 10023. Change this in the event that port 10023 is already being used.
- ❑ **HttpX Port:** This can be changed to any number between 1k and 65k. Default is 54321. It must match the HTTP:port number in Compound\_Rotation.xml.
- ❑ **HttpX IP:** IP address of the machine running Flight Simulator. This feature enables FlightSim to run on one machine and EarthProxy/Google Earth to run on another, separate machine if desired. As long as both machines are connected to the same network, they can communicate.
  - **If FlightSim and EarthProxy/Google Earth are run on the same machine,** then the HttpX IP box can be ignored. The default IP, 127.0.0.1, is equivalent to "localhost" which is the pc running FlightSim and EarthProxy. In a single machine setup, 127.0.0.1 is what you want.
  - **Alternatively, for a dual pc setup,** determine HttpX IP by pressing the Windows Key on the **FlightSim host pc** keyboard:



then type **CMD** and press enter, then type **ipconfig** and press enter:



```
Microsoft Windows [Version 10.0.14393]
(c) 2016 Microsoft Corporation. All rights reserved.

C:\Users\USER>ipconfig

Windows IP Configuration

Wireless LAN adapter Wireless Network Connection 4:

    Connection-specific DNS Suffix . . . :
    Link-local IPv6 Address . . . . . : fe80:c4c2:d104:9395:ff7c211
    IPv4 Address. . . . . : 192.168.0.107
    Subnet Mask . . . . . : 255.255.255.0
    Default Gateway . . . . . : 192.168.0.1

C:\Users\USER>
```

- The IP address is found on the IPv4 line. In this example, 192.168.0.107. Enter that into the HttpX IP box in EarthProxy on the EarthProxy/Google Earth machine.
- Confirm that Subnet Mask is the same for both the FlightSim host pc and the remote pc running EarthProxy. Repeat the Windows Key, CMD, ipconfig sequence on the remote pc and note the Subnet Mask.

3. Start Flight Simulator.

4. On Google Earth Proxy, click **Start**, and then click **Open KML File**. At that point, Google Earth will open and will fly to the present aircraft position in Flight Sim.

If Google Earth opens but does not fly to the current aircraft location, then:

a) it is possible that the GEViewInit initialization sequence in Compound\_Rotation.xml was not processed or the HttpX Port numbers do not match, or

b) if you are using a 2 pc configuration, the machines may not be on the same network. Check that Subnet Masks match and the FSX host machine IP address was entered into HttpX IP.

## Google Earth

Download and install Google Earth Desktop Client <https://www.google.com/earth/>. As of this writing, the current desktop client Earth version is 7.1.8.3606 (Build Date 17 January 2017), but you need at least v.5.0 for the Touring tools. Either Google Earth or Google Earth Pro are fine to use with GE View, but not Earth (v.9).

In Tools > Options > 3D View > Terrain:

- Set 'Elevation Exaggeration' = 1
- Click 'Use high quality terrain'
- Click 'Use 3D Imagery'

In Tools > Options > Navigation > Fly-To:

- Set Fly-To-Speed to 4.5000** (experiment, but >4.500 seems to yield poor results, as does less than about 3.0000)

## OTHER INFORMATION

### HTTPX – EARTHPROXY ARCHITECTURE

HttpX starts an http server that reads FlightSim variables and returns their values as a json object. EarthProxy also starts a server which takes requests from Google Earth, proxies them to HttpX, and then converts the json to kml. Both of these servers need to be bound to ports.

### GENERAL USE

After the one-time installation of HttpX, XMLTools, and Compound\_Rotation, just double-click EarthProxy.exe to launch Google Earth .

While flying, use the joystick HAT switch to change Google Earth view direction.

### TIP

To prevent automatic PAUSE of Flight Simulator whenever the Google Earth desktop client window is clicked (which makes it the active window), de-select "Pause on task switch" in Flight Simulator Settings:

Options > Settings > General > Program > Pause on task switch – de-select

## 3D ROTATION REFERENCE

3D Rotation for Flight Simulator - Google Earth Application  
(Quaternion and Euler Rotation algorithms)

<http://fsdeveloper.com/forum/threads/ge-view.436365/#post-734395>

## JOYSTICKS, TRACKIR, AND CAPTURING PAN VIEW AZIMUTHS

To capture joystick HAT switch movement, I use Tom Aguilo's XMLTools, as shown in lines 5-12 of the Compound\_Rotation.xml gauge. Compound\_Rotation.xml, however, may not function correctly with other FOV controllers like TrackIR.

Users that wish to edit Compound\_Rotation for use with controllers like TrackIR or use different software to capture HAT switch movement, such as javascript Gamepad API, should keep the following in mind:

EarthProxy reads the following variables to properly orient the Google Earth camera:

- (L:GE TILT, degrees)
- (L:GE ROLL, degrees)
- (L:GE HEADING, degrees)

These L:Vars are the post-3D rotation product of the HAT switch azimuth and aircraft attitude angles. Importantly, those three specific L:Var names are hard coded in EarthProxy.

Users of other controllers or alternative HAT azimuth information will need to compute proper 3D rotations and write the post-rotation camera angles to the L:Vars listed above.

Refer to the 3D Rotation Reference, above, for additional information on Quaternion and Euler rotation algorithms.

## NEW VERSION OF GOOGLE EARTH

Google released a new version (9.0.31.6) of Earth on 18 April, 2017. It's browser based (Chrome only) so no download and install is necessary. Many features of desktop client v.7 were removed, but some new ones were added to make it more informative than before. Google has not yet provided a javascript API, so for the time being, a version of G.E. View for use with Google Earth v.9 isn't being developed.

As far as I know, there isn't any word on Google's plans for Earth Desktop Client (v.7) or Desktop Client Pro (v.7). If Google eventually deprecates Earth Desktop Client, then GE View users should switch to Earth Pro and still use HttpX.dll 2.0 and EarthProxy.exe 1.2. It seems unlikely the Google will deprecate Earth Pro anytime soon as many businesses use that product.

## LICENSE

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<http://robbiemcelrath.com/fs/blackbox/about>.

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### Example dll.xml for P3D:

```
<?xml version="1.0" encoding="Windows-1252"?>

<SimBase.Document Type="Launch" version="1,0">
  <Descr>Launch</Descr>
  <Filename>dll.xml</Filename>
  <Disabled>False</Disabled>
  <Launch.ManualLoad>False</Launch.ManualLoad>

  <Launch.Addon>
    <Name>HttpX</Name>
    <Disabled>False</Disabled>
    <ManualLoad>False</ManualLoad>
    <Path>Modules\HttpX.dll</Path>
    <DllStartName>module_init</DllStartName>
    <DllStopName>module_deinit</DllStopName>
  </Launch.Addon>

  <Launch.Addon>
    <Name>XMLTools</Name>
    <Disabled>False</Disabled>
    <ManualLoad>False</ManualLoad>
    <Path>Modules\xmltools3d.dll</Path>
    <DllStartName>module_init</DllStartName>
    <DllStopName>module_deinit</DllStopName>
  </Launch.Addon>

</SimBase.Document>
```