

L.A.A.P.

LiveATC AutoPlay

Prepar3D v3 / v4

<http://laap.atc.free.fr>



Sorry for my English, I did my best to translate this document ...

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About version 2.0

Previous files Language and Laap.ini are not valid anymore with this version. Please don't try to update manually or mix different versions together.

VLC starts now as a process, there's no icon in tray bar. Laap uses luasocket library on default VLC port 4212. It communicates via telnet interface to start and stop files. When Laap will start for the first time, Windows firewall will probably ask for your permission.

If you encounter problems using this new management, you can still reverse back to the previous method by modifying the line StartVlcAsProcess in Laap.ini

No change concerning public and private keys :

- no key = messages displayed every 30mn
- free public key = no message for the current month
- private key for donors : no message anymore

I'm very far from being a professional programmer, I only develop during my free time and initially for my home cockpit. Please be indulgent if my script doesn't work exactly as expected ...

Laap, what is it ?

LAAP is the abbreviation of Live ATC Auto Play. It's a LUA script which automatically launch a streaming file (PLS) or a MP3 file regarding the COM1 frequency set in P3D and the distance of the corresponding station. PLS streams and MP3 files can be freely downloaded on LiveATC.net.

LAAP doesn't modify any AI traffic or ATC in P3D, it just let you to hear a background live ATC while you're flying.

The simplicity of use has been a priority for me during the development. No manual configuration needed to associate a PLS or MP3 file with the corresponding P3D frequency, as soon as you name them correctly, it's done automatically. All you have to do is to copy a file into the LAAP directory, and it will be immediately associated with the correct frequency.

Before installing LAAP, please ensure you already have :

- VLC installed
- P3Dv3 or v4
- A REGISTERED and up-to-date version of Fsuipc, v4.971 (P3D3) or v5.121 (P3D4) at least

What it's not?

LAAP is not an AI traffic program;

It's not a way to have a more realistic ATC in P3D anymore.

Improvements of version 2.0

- Removed (I hope ...) a bug which started an infinite loop when an OACI code wasn't found in f5.csv or runways.csv.
- Removed Laap menu which was often conflicting with other parts of the code. Now, all of the messages are displayed in P3D upper text line.
- Added parameter AutoToggleFsAtc in Laap.ini : 1 to toggle P3D receiving COM when a MP3 or PLS file is played. This to prevent P3D native ATC to be played at the same time as a file. P3D ATC can still be accessed using the other COM.
- VLC is now started as a process and accessed by Laap using port 4212 on localhost (password pwd). There is no more configuration to do to hide VLC and remove Windows notifications. This function can be disabled in Laap.ini : see parameter StartVlcAsProcess.
- Added the ability to calculate transmission range as in real life : $\text{range[NM]} = 1.23 * \sqrt{\text{altitude[ft]}}$. This way, range will increase with altitude. See TransmissionRange parameter in Laap.ini.

What are the installed files for ?

- Modules\LaapATCv2.0.lua : the main script.
- Modules\ipcReady.lua : configuration script started only once after installing Laap. Language can be selected and lines are added in FSUIPC4/5.ini in order to start Laap with P3D. It is not used anymore after that and is automatically deleted.
- Modules\LiveATC Freq\LFBD_APP(80).PLS (and some other PLS or MP3 files from liveatc.net)
These are audio files which let you hear the live ATC. Any PLS and MP3 files are accepted. In the archive are included some MP3 files to test Laap : LFBD and LFBZ. You'll have to add any MP3 or PLS file you want for your favorite airports frequencies.
- VLC must be installed on your computer. It's the player used to play PLS and MP3 files.
- Modules\LiveATC Freq\Data\LAAP.ini
It's the ini file of LAAP. You can modify some parameters here.
- Modules\LiveATC Freq\Data\Laap.log
It's a log file you can activate in Laap.ini (LaapLog = 1) which help to solve problems in case of dysfunction of Laap. Complete log file is needed for any technical support.
- Modules\LiveATC Freq\Data\Language.lua
It's the language file for LAAP. You can modify it with any text editor. Just rename LanguageEN.lua or LanguageFR.lua in Language.lua to have LAAP in the language of your choice.
- Modules\LiveATC Freq\Data\TableOp.lua
It's a little script I'm not the author, so I didn't want to include it in my own script as it's not my creation. It is used to save and restore the airports, frequencies and stream files database because it's really more easy and quick to read this unique file than re-creating the whole database at each start
- Modules\LiveATC Freq\Data\socket.lua
It's the luasocket library which makes Laap communicate with VLC. I use this library to send actions to VLC (start, stop, volume, close ...) Default port is 4212 for telnet interface, no external connection made.
- Modules\LiveATC Freq\Data\f5.csv et runways.csv
These two files are not P3D native. They are created with the Peter Dawson "MakeRunways" which can be freely downloaded on his site. These files contain all the airports data (latitude, longitude, frequencies, runways ...) and are used to calculate for example the distance between your aircraft and the station set on your COM1. You can create your own f5.csv and runways.csv files if you have modified some bgl with new frequencies.
- Modules\LiveATC Freq\Data\LaapFreqData.dbb
All necessary informations to make LAAP working correctly are stored in this database. It is used to associate a COM1 frequency with its airport and position, so LAAP can check if you can hear this station or not. If this file

doesn't exist, or if it doesn't match with the stream files in the LAAP folder, it will be recreated at the next start.

- A good flight simulator, it's better with ... This version of Laap is specifically for P3Dv4, it won't work with previous versions. A registered version of FSUIPC v4.971 (P3D3) or v5.121 (P3D4) at least is needed.

Install – deactivate - uninstall

Installation :

- Install **VLC** if not already done (VLC is free) ;
- Extract the archive in **Modules** folder of P3D ;
- If you want, you can enter a **valid registration key** (get one for free on our site : <http://laap.atc.free.fr>). This will remove reminder messages concerning donation for the current month.

The script is automatically launched when P3D is “ready to fly”.

*If you don't want, you can simply delete the line « n=lua LaapATCv2.0 » in FSUIPC4/5.ini ([AUTO] section).
Now can then configure a key in fsuipc to launch the script when you want.*

Pour cela :

- In P3D : Add-Ons > FSUIPC > Key Presses > Click “Set” then hit the key you want for laap to start
- In « Control sent when keys pressed » choose Lua LaapATCv2.0
- Click on Confirm, then OK.

Deactivate :

If you only want to deactivate Laap for some time, you only need to delete line « n= lua LaapATCv2.0 » (FSUIPC4/5.ini [AUTO] section). This done, nothing will be loaded in P3D

Uninstall :

Delete from Modules folder :

- LaapATCv2.0.lua (the main script)
- Folder LiveATC Freq

That's all, nothing else was installed ...

Checking LAAP is working

- Start P3D, go to Bordeaux LFBD with engines running (prefer a generic aircraft at this time)
- Tune 131.15 on COM1. VLC starts but is not visible
(you can check in Windows task manager : Ctrl-Alt-Sup and look for VLC process)
- You should hear an ATIS voice recorded in Bordeaux airport.
- Tune 125.60 (LFBZ), you shouldn't hear anything because you're too far from Biarritz.
- Tune 118.60 : You should hear the live stream of Bordeaux approach.

Installation of new stream files (PLS or MP3)

You can put as many PLS and MP3 files as you want in the LiveATC Freq folder, they'll be launched if their name matches this format : OACI_TYP(volume).EXT where :

OACI = oaci of the airport (LSGG, KJFK, EGLL, KFSO ...) : Always 4 letters

TYP = type of frequency (APP, DEP, UNICOM, ATIS, GND ...)

volume = numeric : desired volume (in %) - Optional

EXT = « PLS » or « MP3 »

Frequency type must be : [ATIS](#), [MULTICOM](#), [UNICOM](#), [CTAF](#), [GND](#), [TWR](#), [CLR](#), [APP](#), [DEP](#), [CTR](#), [FSS](#), [AWOS](#), [ASOS](#), [CLR-PT](#), [CLR-RD](#).

For more information about frequencies types, please refer to « LAAP in detail » part.

Exemples :

Correct filenames :

LFBD_APP.MP3

LFBD_ATIS(55).PLS

KSFO_CLR(70).PLS

Bad filenames :

LFBD_APPROACH.MP3

STDBY(50).PLS

KSFO_CLR (70).PLS

note the space between CLR et (70)

No manual configuration to do, as soon as you respect the above format in a filename, it will be automatically associated with P3D frequencies and played if COM1 set on this frequency.

Note : if a PLS file and a MP3 file have the same name, then the PLS file has the priority to be played.

SPECIFICITY OF ATIS TYPE

Since version 1.4, it's possible to play ATIS streams (KJFK_ATIS.PLS for example). In this case, LAAP will switch P3D audio receiver off while ATIS frequency is played. Audio receiver will be switched in original configuration when leaving ATIS frequency. This is to avoid generic P3D ATIS to be played at the same time of your stream.

A SPECIAL FILE : « STDBY.PLS »

You can add to your audio files a special one : STDBY.PLS.

If you configure StdByFreq=1 in Laap.ini, the STDBY.PLS file will be played when no station is in range. This is for your long transatlantic flights ☺. PLS files are playlists, you can modify them with any text editor to start your own MP3 files if you want. They can be read in a random order in VLC.

You can also configure StdByFreq = 123.5 in Laap.ini. If you do, STDBY.PLS will be played when COM is set on 123.5 and no station is in range.

A PLS file format is :

```
[playlist]
File1=./Radio.mp3
Title1=La radio
Length1=-1
File2=./Musique.mp3
Title2=La musique
Length2=-1
NumberOfEntries= 2
```

Entries Title and Length are optional.

SETTING VOLUME FILE-BY-FILE

You can set a specific volume for each file you use in Laap. Without indication, the default volume is set to 100% (you can modify it in Laap.ini).

To modify the volume of a specific file, just indicate it with '(') in its filename :

Example : LFBD_UNICOM.PLS will be played at 100% (or at default volume specified in Laap.ini)
 LFBD_UNICOM(60).PLS will be played at 60%

STDBY.PLS has no volume option, its name has to remain unchanged.

You can specify the volume of this specific file with parameter StdByVolume in Laap.ini.

LAAP in detail

To have a correct comprehension of LAAP and its options, it's necessary to understand how the ATC is working in P3D.

For each airport, P3D has a list of frequencies. If you open the f5.csv file with a text editor, you will see for example the line : LFBD, 8, 118.60, « AQUITAINE ».

The "8" is the type of frequency : approach. P3D uses the types below :

Type 0 : no frequency	Type 8 : APP (Approach)
Type 1 : ATIS (Automatic Terminal Information Service)	Type 9 : DEP (Departure)
Type 2 : MULTICOM	Type 10 : CTR (Center)
Type 3 : UNICOM	Type 11 : FSS (Flight Service Station)
Type 4 : CTAF (Common Traffic Advisory Frequency)	Type 12 : AWOS (Automated Weather Observing System)
Type 5 : GND (Ground)	Type 13 : ASOS (Automatic Surface Observing System)
Type 6 : TWR (Tower)	Type 14 : CLR-PT (Clearance Delivery Pre-Taxi)
Type 7 : CLR (Clearance)	Type 15 : CLR-RD (Remote Clearance Delivery)

The files you want to read must have one of these suffixes (blue) just after the underscore.

For example, for JFK, you can name your files : *KJFK_***ATIS**.PLS, *KJFK_***GND**.PLS, *KJFK_***CLR-PT**.MP3 ...

but not *KJFK_***APPROACH**.MP3 !

*Note : You can add a specific volume for each file : KJFK_***APP**(50).MP3 will be played with a gain of 0.5

IMPORTANT : NO SPACE IN FILENAMES

When LAAP starts, it performs some check and operations :

- Read the LiveATC Freq folder (your streaming files) and creates this kind of list :
LFBD_UNICOM.PLS ; LFBZ_TWR.PLS ...
- Search for OACI codes of the airports of the above list. For that, the name of each file is segmented at the "_" character, and the first part (before the "_") is read. At this time, there is no relation made with the frequencies, the lists are only created by looking at the name of your files ...
A list of available airports is then created :
LFBD ; LFBZ ... which are only the first characters of your filenames.
- For each airport of this list, look for information in f5.csv and runways.csv.
LAAP is now generating its first database with airport name, latitude, longitude, the list and type of each frequency. Now, we have something like that : LFBD ; 8 ; 118.60 ; MERIGNAC ; 44.82 ; -0.73
- Associating these data with your PLS files :
In P3D, 118.60 is the frequency of LFBD type 8 (so APP). LAAP checks if a LFBD_APP.PLS file exists. If yes, the file is associated with the frequency. If not, 118.60 is associated with "no file to play". The final database is the LaapFreqData.dbb (you can open it with a text editor to see what's inside) and looks like that :
LFBD ; 8 ; APP ; 118.60 ; MERIGNAC ; 44.82 ; -0.73 ; LFBD_UNICOM.PLS

- Finally, LAAP reads the COM1 freq and compare it with the frequencies in LaapFreqData.dbb. If a frequency matches, check aircraft position and if station is in range, play the PLS file with VLC. If no frequency in database or too far of the station, VLC is stopped.

The airports and frequencies database

The file "LaapFreqData.dbb" is created when LAAP starts (only if it doesn't exist or if it doesn't match with the PLS files) and contains all the necessary information.

It contains the OACI code of each airport, the list and type of frequencies (and the PLS file associated with), the latitude and longitude of each station. In other words, it's a summary of the f5.csv and runways.csv files. Only the airports for which you have a PLS or MP3 file are stored in that database.

When the LaapFreqData.dbb file exists in the Data folder, the database is read directly from this file, that's very fast. If not, the database must be generated. LAAP must read the 48000 lines of f5.csv and 54000 lines of runways.csv, and make a lot of comparisons and checks. It's a little more complicated and should take a few seconds.

LAAP can't detect new files if they have been added during a flight. They will be integrated in database on next start.

If you have addon sceneries which change some frequencies, you would like to rebuild your own f5.csv and runways.csv. To do that, you must use the Peter Dawson soft « MakeRunways » available at :
<http://www.schiratti.com/dowson.html>.

Options

Parameters defined in the LAAP.ini file can be manually modified with any text editor.

ApproxFreqs = 1 (*correct values : 0 or 1*)

As explained before, when you set a COM1 frequency, this one is read to find its airport provenance and its type. After that, LAAP checks if a streaming file exists and if you're in the range of transmission :

Airport = LFBD / Frequency type = Unicom => look for file LFBD_UNICOM.PLS => If found, play the file

If P3D knows this frequency as a CTR type (instead of UNICOM), LAAP won't start the file because the type doesn't match, there is no file named "LFBD_CTR.PLS".

It's possible you wish to play the file LFBD_UNICOM.PLS even if you select a frequency known as CTR or APP in P3D. It's the main function of parameter ApproxFreqs. You should do that by manually copying the file LFBD_UNICOM.PLS and rename with _CTR, but as there is 16 different types of frequencies in P3D, duplicating a single file with all of these names is not very comfortable ...

When ApproxFreqs = 1, all of the frequencies « high range » will be treated as the same type. A COM1 frequency known as CTR will play as well APP, MULTICOM, UNICOM, CTAF files ... Idem for « short range » frequencies : GND, TWR and CLR files will be played as a single type.

To simplify :

ApproxFreqs = 1 : MULTICOM UNICOM CTAF APP DEP CTR FSS AWOS ASOS are considered as a unique type, and GND, TWR, CLR, APP and DEP as another type. (Note that APP and DEP are common in both types, they will be played as well as short or long range frequencies.)

ApproxFreqs = 0 : Plays a streaming file only if the type declared in it's name (for example XXX_APP.PLS) matches exactly with the P3D frequency type.

Please note that the exact type always has priority on approached type. In the same way, a PLS file will be preferred compared to a MP3 file which have the same name and type.

DisplayInfo = 1 (*correct values : 0 or 1*)

Just display a short message when a streaming file is played, or a frequency is lost. If you set 118.60 for Bordeaux Approach (and you're not too far of course), you'll get a message at the top of the screen :

"Frequency active : 118.60 LFBD APP "Mérignac".

ComToMonitor = 1 (*correct values : 1 or 2*)

It's the COM number that must be monitored.

ComToMonitor = 1 : Plays streaming files depending of COM1 frequency.

ComToMonitor = 2 : Plays streaming files depending of COM2 frequency.

This function is useful if you want to fly a flight plan with P3D ATC (and contact controllers on COM1) and listening at a real ATC on COM2 for example.

TransmissionRange = 0 (*correct values : positive integers or 0*)

It's the maximum range (in NM) at which a station can be heard. TransmissionRange = 80 means that farther, you won't be able to hear the station and Laap will stop VLC to simulate an out of range station. The position of the aircraft is checked every 20s, looking for new emitters.

This parameter has no effect on P3D ATC of course.

If TransmissionRange is set to 0, then the value will be calculated as in real life :

$$\text{range[NM]} = 1.23 * \text{sqrt}(\text{altitude[ft]})$$

This way, transmission range will increase with altitude.

For airports near sea level, the minimum altitude for calculation is set to 100ft.

StdByFreq = 123.5 (*correct values : 0, 1 or VHF frequency*)

StdByFreq = 0 : When no station in range, Laap doesn't play any sound.

StdByFreq = 1 : When no station in range, Laap plays file STDBY.PLS (or MP3).

StdByFreq = 123.5 : When no station in range, Laap starts the file STDBY.PLS (or MP3) if COM1 is tuned on 123.50 MHz.

It's an easy way to play a special file (or a list of files) when there is no station in range. Making your long lonely transatlantic flights less boring ! This specific file has to be named STDBY.PLS and must be at the same place as other audio files : in folder LiveATC Freq.

A PLS file is a playlist you can edit with any text editor. For example, a PLS file can point to multiple MP3 files that you can read in a random order in VLC.

The format for a PLS file is :

```
[playlist]
File1=./Radio.mp3
Title1=La radio
Length1=-1
File2=./Musique.mp3
Title2=La musique
Length2=-1
NumberOfEntries= 2
```

Entries Title and Length are optional.

StdByVolume = 100 (*correct values : integers from 1 to 100*)

Volume to play STDBY.PLS (or MP3) as a percentage.

DefaultVolume = 70 (*correct values : integers from 1 to 100*)

Default volume to play files which names doesn't contain volume parameter between parenthesis.

LaapLog = 1 *(correct values : 0 or 1)*

LaapLog = 1 : Write Laap events in Laap.log file (folder LiveATC Freq/Data).

LaapLog = 0 : No log file.

AvionicsBusOffset = 2850 *(correct values : any 8 byte length valid offset)*

It is the FSUIPC offset read by Laap to check if avionics are powered or not. The 2850 offset is normally at 28V when engines are running. If this voltage falls below 17V, avionics are not powered anymore and Laap will stop playing sounds.

You can change this offset but you always need to point a 8 bytes long offset (64 bits double floating point value). This way you can control with SIOC for example if your radios are powered or not. Especially useful for overprogrammed aircrafts which don't use standard FSUIPC offsets.

BusMinVolts = 17 *(correct values : positive integers)*

It's the minimum voltage required for radios to be powered.

BusMinVolts = 17 means that below 17 volts, radios are not powered anymore, so no streaming file must be played.

BusMinVolts = 0 disables all checks of avionics electrical systems. The streaming files will be played even if batteries are at 0V. This parameter must be set at 0 when « Unlimited battery » option is selected in Fsuipc.

This value is the value of the offset AvionicsBusOffset.

AutoToggleFsAtc = 0 *(correct values : 0 or 1)*

Allows to switch P3D receiving COM when Laap plays a file. This way, Laap and P3D won't play two sounds at the same time.

AutoToggleFsATC = 0 : Laap don't care about P3D native ATC, Laap and P3D can play sounds at the same time.

AutoToggleFsATC = 1 : When Laap start a sound, it will automatically switch P3D receiving COM on COM2. This way, Laap and P3D won't play ATC at the same time (except if you tune COM2 on a P3D frequency). When Laap stop to play, it will switch the P3D ATC back on COM1.

VLCFolder = C:\Program Files\VideoLAN\VLC

It's the folder where VLC is installed. Must be an absolute path without "\" at the end.

If you get an error message "VLC not found" when Laap starts, please modify the path accordingly to your configuration.

StartVlcAsProcess = 1 *(correct values : 0 or 1)*

StartVlcAsProcess = 1 : starts VLC as a process, not an application anymore. VLC icon doesn't appear in tray bar but you can check if it is launched or not with Windows task manager. Laap communicates with VLC using telnet, port 4212.

StartVlcAsProcess = 0 : starts VLC as an application, just as it was in previous versions of Laap. VLC icon is in the tray bar and VLC can be windowed. Laap communicates with VLC using command line. Disadvantage : Windows notifications have to be muted, multiple VLC icons in tray bar and lost focus on P3D window during the flight.

LicenceKey = xxx

UserId = xxx

LAAP uses a key system. There are two types of keys :

- Temporary public key : available for free on our site after login
This key is available for the current month and removes the short reminder message which appears each 30mn if you don't enter it.
- Permanent private key : provided to donors
Permanently removes reminder messages.

LAAP is distributed under a DonateWare license. If you enjoy flying with LAAP, please really consider making a donation to the author. Any amount can be given, that's your choice, but be sure that even lower donations as \$1 are a great help and encouragement to continue developing and improving the code. For all generous donors, a permanent private key will be provided. This in addition to my eternal gratitude an incomparable recognition of course !

Versions with no key entered or with an expired public key will display a short reminder message each 30mn of flight.

If you want to remove reminder messages, you can either enter a free temporary public key (get one for free on our site <http://laap.atc.free.fr>) or get a permanent key for donors.

These key have to be manually entered in laap.ini.

Laap functionalities, with or without a key, are exactly the same.

Known bugs

- No bug reported for now, I'm waiting for your feedback !

Future developments

Thanks to all users who have contacted me to suggest improvements. I do my best to integrate your wishes when I find some time.

Some improvements still not done at this time :

- Adding FIR frequencies : I can't find anywhere an exhaustive list of ENROUTE frequencies used by P3D. For now I can't implement this function.
- Disable LAAP audio only when a P3D controller is speaking. Unfortunately, P3D ATC is undocumented and as far as I know, it's not possible to know if a controller is speaking or not.

If you have any information about these two last points, please let me know ...

One more time thanks to all of you who spent their time to send feedbacks and suggestions ☺.

Feedbacks, suggestions and opinions are welcome :

laap.atc@free.fr

A better translation of this document is also welcome ...