The

CIX

VFR Club

SETTING UP a FLIGHT SIMULATOR SYSTEM

for

VATSIM

and

The *CIX* VFR Club

Part 2A:
Connecting with FSInn 1.0

NOT TO BE USED FOR REAL WORLD AVIATION

Prepared by:
Peter Dodds
Version 2.0   email: pdodds@writek.co.uk   :   http://www.writek.co.uk

<div align="center">**Document History**</div>

Date	Version	Changes
09/11/2005	1.0	Initial Published version

<div align="center">**Acknowledgements**</div>

My thanks to Tony Driver for his continued patience with my mistyping and for editing yet another of my typographically careless documents.

<div align="center"># NOTICE</div>

Since this document was written, and before it was published, FSInn was significantly upgraded to version 1.1.   The new version is still in the public Beta testing phase of development as of December 2005.

<div align="center">**Consequently a new part to this series**

"Part 2B: Connecting with FSInn 1.1

will be published once FSInn 1.1 is formally released.
</div>

Table of Contents

1 JOINING THE VATSIM WORLD

1.1 Introduction

This tutorial is specifically designed to help members of *CIX* VFR Club get started flying with live, simulated Air Traffic Control via VATSIM. It explains how to set-up FS2004 for multiplayer operation via the Internet, in company with other members of the *CIX* VFR Club, and the wider on-line Flight Sim community.

1.2 Why use FSInn?

The ATC connection program FSInn works with FS2002 and FS2004, but unlike Squawkbox 3, which only works under Windows XP, it will work satisfactorily with Windows 98SE, Windows 2000, Windows ME, Windows NT and Windows XP. FSInn provides very similar facilities to Squawkbox 3, so if you are running Windows XP, it is probably a matter of personal preference which you choose. Once you have got used to one of them, you might like to try using the other to see which you prefer.

Setting up and using Squawkbox 3 is covered in Part 1 of this Manual, "Connecting with Squawkbox 3" also available on the web site. The FSInn Operations Manual is well written and clear, and you should read it as you install the software. Those with FS2002 should **definitely** read it before proceeding too far, as some details of use are different from FS2004.

1.3 VATSIM

VATSIM – Virtual Air Traffic Simulator is an international community of people linked by a passion for flight and air traffic control simulation. Believe it or not, there are almost as many people who want to be virtual Air Traffic Control Officers (ATCOs), as there are who want to be virtual pilots. Many are real-world pilots and air traffic controllers. As well as small groups like ours, there are virtual airlines; their pilots flying all over the world, and talking to many people in other countries, and there are both national and international events in which we can take part. The ultimate goal is to make flight simulation ever more realistic. Thanks to all those virtual Air Traffic Controllers, providing live ATC dialogue, flight simulation enters a completely new dimension.

Vatsim offers two methods of communicating with virtual Air Traffic Control; text and voice. With text, ATCOs type their instructions to pilots, which are then displayed on the pilot's screen. The pilot responds by typing acknowledgements to the received instructions. The VATSIM software contains modules which allow voice-over-internet communications between controller and pilot. Cleverly, instead of having to enter an internet address to access a voice channel, pilots simply enter a radio frequency in the FS aircraft COM1 or COM2 radio – usually COM1. To use voice, the pilot simply dials in the

published frequency, e.g. Liverpool Approach is 119.85, and the software connects the pilot to the controller (as if by magic!)

1.4   *CIX* VFR Club

The *CIX* VFR Club is a group of Flight Simulation enthusiasts who like flying extremely realistic simulated light aircraft, chiefly around the United Kingdom, across a computer generated landscape made up of real photographs, within an Internet community environment. We normally navigate under Visual Flight Rules (VFR) which means flying by reference to ground features, using compass and clock.

Based at London Biggin Hill Airport, and also at Gloucestershire Airport, the club meets weekly and holds events such as visits to distant aerodromes, or to practice our flying skills. Thanks to Internet technology, members see each other's aircraft, and talk to each other on-line as they fly. Naturally, we use the realistic, live, simulated Air Traffic Control available from VATSIM.

Club members are strongly encouraged to use voice communications with Air Traffic Control, as this is realistic, and probably more importantly, it is very difficult to fly a light aircraft, navigating under VFR, therefore looking out of the windows constantly, and type your ATC messages. It is easier for the heavy brigade, as they have autopilots to fly the aircraft while they type. Although some of the aircraft we fly are equipped with autopilots, we don't use them generally, because in the real world, few of the simple single engined light aircraft that we fly have them fitted.

2   DOWNLOADS REQUIRED

The following software is required and may be downloaded from a number of sites. The recommended sites are shown against the software. A summary of the function of each piece of software is contained in sections 2.1.1 to 2.1.3 below.

2.1   Essential Software Tools

Software	Version	Download from
FSUIPC	3.5	www.schiratti.com/dowson.html
FSInn	1.0	http://www.mcdu.com/downloads
AVC	1.0	http://www.vatsim.net/voice/avc
TeamSpeak 2RC2	2.0.32.60	http://www.goteamspeak.com/downloads.php

With the exception of FSUIPC, all this software is free. FSUIPC is available as a free version, but the registered version of FSUIPC costs only 20 Euros. If you buy WideFS at the same time, the price for the two is 30 Euros. You may choose not to register FSUIPC, but it severely restricts the flexibility of on line

flying if you use the unregistered version, because the registered version includes many benefits which are inaccessible in the unregistered version.

Further details about how these applications work and their many features, can be found it the excellent documentation which comes with the downloads from the sites listed above.

2.1.1 FSUIPC

FSUIPC is an interface utility which provides a doorway into and out of Flight Simulator for external programs. For example, you could write a program to monitor an aircraft's airspeed, and to reduce engine power to idle if a certain speed were exceeded. The program **receives** the FS airspeed data and compares it to its limit. When this is reached it **sends** a command which has the same effect as pressing the F1 key on the keyboard. In fact many of the most useful functions that you might like to set up to make FS work better are built into the registered, payware version. Full installation and operation details are provided in Section 4.1 below.

2.1.2 FSInn

FSInn was developed by the Flight Simulator French Development Team and first released in April 2005. Like its cousin, Squawkbox, (with which, incidentally, it bears little visual resemblance) it is used to connect on line pilots to VATSIM. At present it only connects to VATSIM, but is being developed for connection to the other on-line ATC networks. Like Squawkbox, it works with FS2002 and FS2004, but unlike Squawkbox 3, which only works under Windows XP, it will work satisfactorily with Windows 98SE, Windows 2000, Windows ME, Windows NT and Windows XP. (All the relevant upgrades to those operating systems must also be installed.) Full installation and operation details are provided in Section 4.2 below.

2.1.3 AVC

AVC stands for Advanced Voice Client. It is a simple to use application which allows voice communication between VATSIM air traffic controllers and pilots. In Squawkbox, this application is built in, but with FSInn, AVC has to separately installed and run. Full installation and operation details are provided in Section 4.3 below.

2.1.4 TeamSpeak

TeamSpeak is a stand alone Voice-over-Internet application. The Club uses TeamSpeak to log into its private voice server, so that members can talk to each other as well as Air Traffic Control during club flights. Full installation and operation details are provided in Section 4.4 below.

2.2 Almost Essential Software

The following software is not essential, but does make the experience of on-line flying easier and therefore more enjoyable.

Software	Version	Download from
Servinfo	2.02	http://www.avsim.com/hangar/utils/servinfo/downloads.htm
FS Navigator	4.7	http://www.fsnavigator.com/
VIP Package Standard		http://www.mcdu.com
VIP Package Light		http://www.mcdu.com
WideFS	6.50	Not Required for FSInn

Servinfo is a stand alone programme which shows controllers and pilots currently active on VATSIM, worldwide. It has a number of screens which are effectively filters to display sub-sets of data, so that you can, for example, check who is flying with the club by selecting UK data only. You can display the data in map view, check the weather at any selected airfield, list all the VATSIM servers and voice servers, and several other useful functions.

FSNavigator is a comprehensive tool which has many useful functions. Fundamentally, it displays all the scenery data built into FS as a world map including all airfields, controlled airspace, reporting points, and, via a separate menu option, other aircraft around you during a multiplayer session such as a VATSIM Club night. You can zoom in to suit your flight details, right in down to the airfield layouts if required, which is very valuable if you do not have another source of this information. It has an excellent flight planning function, allowing you to plot a route on the displayed map, and then, if you really want it to, it will fly that route for you while you just watch.

It is most useful to the beginner in VFR flight as a "cheat" to tell you where you are when you look out of the window and you get that cold-stomach feeling that you actually don't have the slightest clue! (and it always seems to happen when you are too close for comfort to forbidden controlled airspace).

The VIP Package Standard is a collection of about 1200 different commercial aircraft in an assortment of liveries. It is used by FSInn to display traffic around you while online. The models and textures are varied but they simplistic enough for good performance even on slower PCs. Separate downloads are available for FS2002 and FS2004

The VIP Package Light is a collection of about 83 aircraft all painted in VIP livery. VIP Lite is a subset of the VIP Package Standard specially made to minimise the load on older PCs. Separate downloads are available for FS2002 and FS2004.

FSNavigator is payware. Servinfo and the VIP packages are free.

If you are planning to use FSInn on two computers, then, unlike Squawkbox 3, WideFS is not required, as FSInn has its own interface utility, FSFDT Control Panel, which works invisibly in the background taking care of network data flow issues.

2.3   UK VFR Scenery

In addition to the above, there are three very valuable additions to the basic Flight Simulator package. Because the club flies predominantly in the UK, we use the Visual Flight photographic scenery of the UK. This scenery allows accurate VFR navigation by recognition of ground features as they exist in the real world. A complementary package is the VFR Terrain Mesh, also available from Visual Flight. The complete England and Wales package, with terrain costs in the order of £100.00.

Many members also use the Airports 2000 detailed airports scenery which adds fine detail such as photo-realistic buildings, fences, signage and lighting to hundreds of airfields, large and small. A complete set of parts 1-7 costs about £100 if bought all at the same time.

Software	Coverage	Purchase on line from
VFR Photographic Scenery	England and Wales in 4 volumes	http://www.visualflight.net/photoscenery/
VFR Terrain Mesh	All England & Wales	www.visualflight.net/vfrterrain
UK2000	Highly detailed Airport scenery which covers all of England and Wales in 8 areas	http://www.uk2000scenery.com/main/index.htm Areas 1-7 can be bought separately or as a discounted whole set. The new Area 8 (December 2005) has not yet been offered as part of this deal.

2.4   Optional Software

There are too many applications and utilities available for Flight Simulator to list or recommend in this document. Only the packages above are regarded by the club as really important for getting the best out of membership.

3   HARDWARE REQUIRED

3.1   Computer

It goes without saying that a reasonably up to date computer is needed. Flight Simulator is quite a demanding application, and a fast PC with a good graphics card is highly recommended. None of the addon on software items add significantly to this load, so no additional computer hardware is necessary. Unfortunately, if you become totally absorbed in this hobby, you may well find

yourself wanting to upgrade or replace this item about every three years, as Flight Simulator itself becomes more sophisticated and computers become more powerful.

3.2   Headset

The only other item needed is a headset – combined earphones and microphone. There are a number of choices of headset available for computers. Single earpiece and double earpiece types are both available, with or without a boom microphone attached to the headset. Tabletop or clip microphones can be used, but the background noise they pick up degrades clear voice transmission considerably, and feedback whistle is always a potential problem

A double earpiece model with integral boom microphone is the best option for on-line flying purposes with live ATC. They also reflect more accurately a real world aviation headset. Expensive headsets seem to be no better in performance than cheap ones, so expect to pay between £12.00 and £20.00 for a set. Although the AVC tutorial mentions headset software, none of the commonly available headsets require any software or are supplied with any.

4   INSTALLING THE ESSENTIAL SOFTWARE TOOLS

With the introduction of FSInn and Squawkbox 3, the annoying failures and crashes with previous versions of the VATSIM connection software are largely a thing of the past. Installation and set up of either application is now very straightforward, and most people new to VATSIM experience little, if any, difficulty.

4.1   FSUIPC

FSUIPC is an interface tool which allows all the flight parameters in Flight Simulator to be imported and exported to other software. This allows other programmes to control MSFS, and also allows other programmes to "see" what is happening in MSFS. Without FSUIPC, created by Peter Dowson, much on-line flying would not be possible in the form it is today.

To install FSUIPC, simply follow the instructions in the very clear installation manual included in the download. In a nutshell, copy the file FSUIPC.DLL from the download into the Modules folder of your FS installation.

Follow the registration instructions in the user manual. The registered version offers many more useful options than the unregistered version. You need to enter the registration key before being able to access these options, and for initial set up, you may pass over registration if you wish.

Once FSUIPC is installed, when you start FS2004 you will see an additional item called "Modules" in the top menu bar. If you click on Modules, there will be a single item in the dropdown menu – FSUIPC. If you haven't registered FSUIPC, then opening it will have only two tab options, but if you register, then several more are available. They are all fairly advanced FS configuration

options, some of which are an easier way to configure FS than from within the program itself, others are additional and clever features. However, this is advanced stuff for the moment, so you won't open FSUIPC now. Suffice it to say that its essential function, of interfacing with external programmes, is working in the background whenever FS2004 is started.

4.2   FSInn

Run the downloaded file **SetupFSInn10.exe** and follow the installation instructions in the FSInn User Manual FSInn_FullDoc_EN.pdf, also downloadable from the mcdu web site. The FSInn installation process is very straightforward, so there is no need to repeat it here in detail.

When FSInn is installed, an additional item, 'Copilot' appears in the top menu bar when Flight Simulator is run.

The Copilot option in the FS Menu

FSInn has options for installation either on the same PC as Flight Simulator, or on another computer networked to the FS PC. If you select the latter option, FSInn searches for a copy of FS on the network, and remembers which PC it is installed on.

4.3   Advanced Voice Client

Run the setup.exe programme and follow the instructions of the installation programme. When the installation is complete, you will be given the option to run the AVC immediately. It is recommended that you do, because the AVC application makes necessary registry changes for compatibility with current VATSIM software and FSInn will not automatically find AVC unless it has already been run once.

AVC then has to be configured. Follow the instructions in the Adobe Acrobat help file "AVC.pdf".
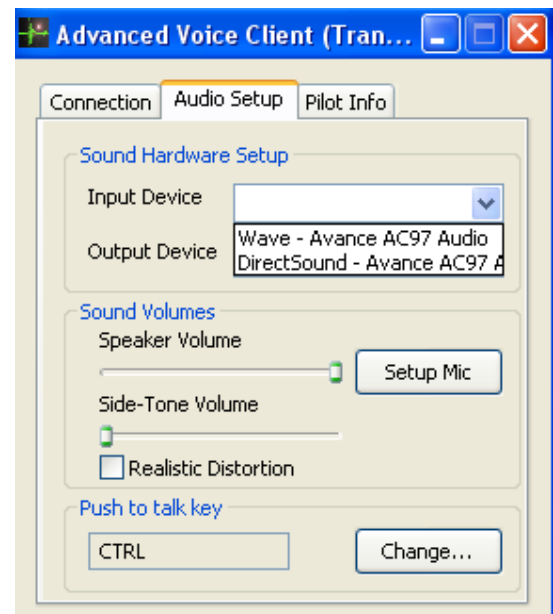
Note: - The Registration function is not yet enabled (November 2005).

4.3.1   Audio Setup

It is important to set your windows sound options correctly so that your microphone is enabled and recognized, and the recording and playback volumes are satisfactory. Sound configuration may be found within "Control Panel". In Windows XP it is called "Sounds Speech and Audio Devices", then a further link called "Sounds and Audio Devices" puts up a window with a number of tabs to look at. The "Volume" tab gives all the options - you only need to check that Mic is on and the volume slider set well up - 75% or so.

In general, selecting the "Advanced" tab under the microphone setting and ticking the "Boost" tick box, will result in over modulation (too loud), but on some systems (mine in fact) it is required. Try your setup first without boost enabled.

When you are flying, the aircraft sounds and the voice transmissions will be sent to your headset. You may need to reduce the sound output levels in MSFS to enable the voice to be clearly heard. If you move on to using two networked PCS (See Section 7 below) you can have the voice coming out of the headset, and the aircraft sounds coming out of your speakers, which is a bit more realistic, and clearer too.
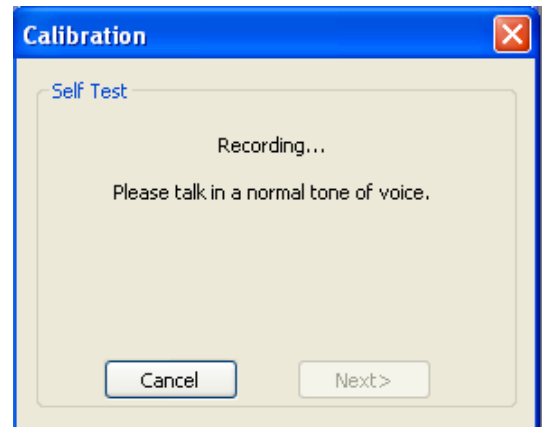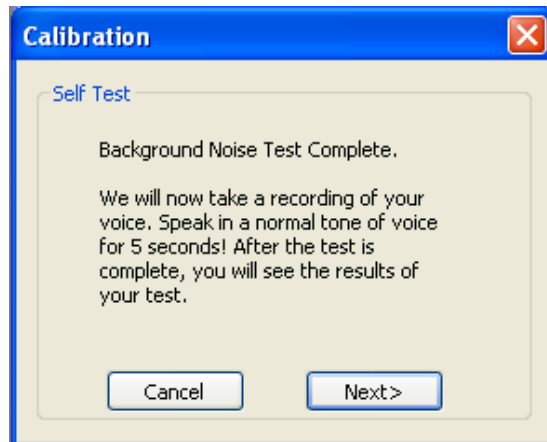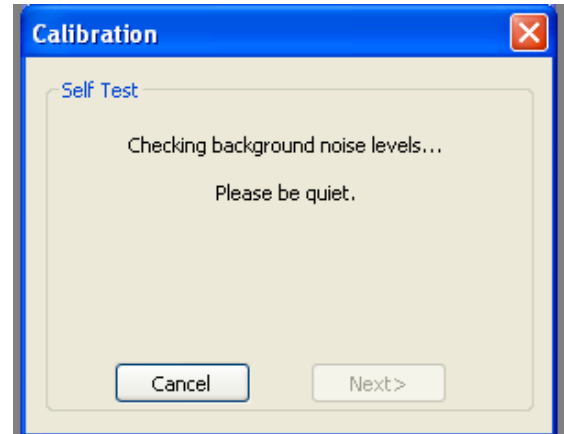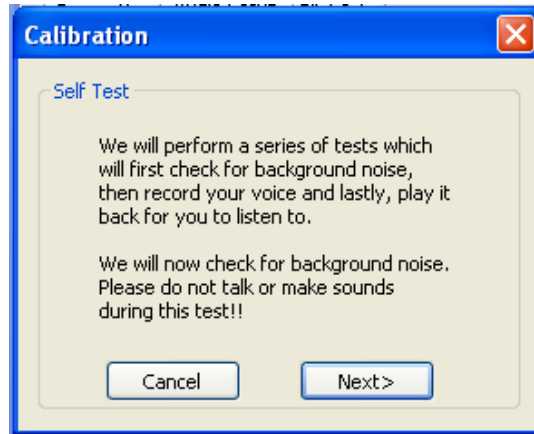
4.3.2   AVC Setup

First select the "Audio Setup" tab (see graphic above) and complete the options. The choice of input and output devices (Wave or DirectSound) is a function of your system hardware and ultimately, which sounds better to you and to others. Select the one which seems to work best, but be prepared to change it if others find your transmissions problematic.

The Push to talk (PTT) key is the keyboard key which when pressed allows your speech to be transmitted, in exactly the same way as in real world radio communications. If you have a registered version of FSUIPC you can configure one of the buttons on your joystick or yoke to act as the PTT switch, which is much more satisfactory than using the keyboard.

The "Setup Mic" function is straightforward. The Self Test screen sequence is as follows:-

When you stop talking, you will hear your voice repeated back to you.

You may receive a message telling you that the background noise is similar to your voice, as illustrated below.

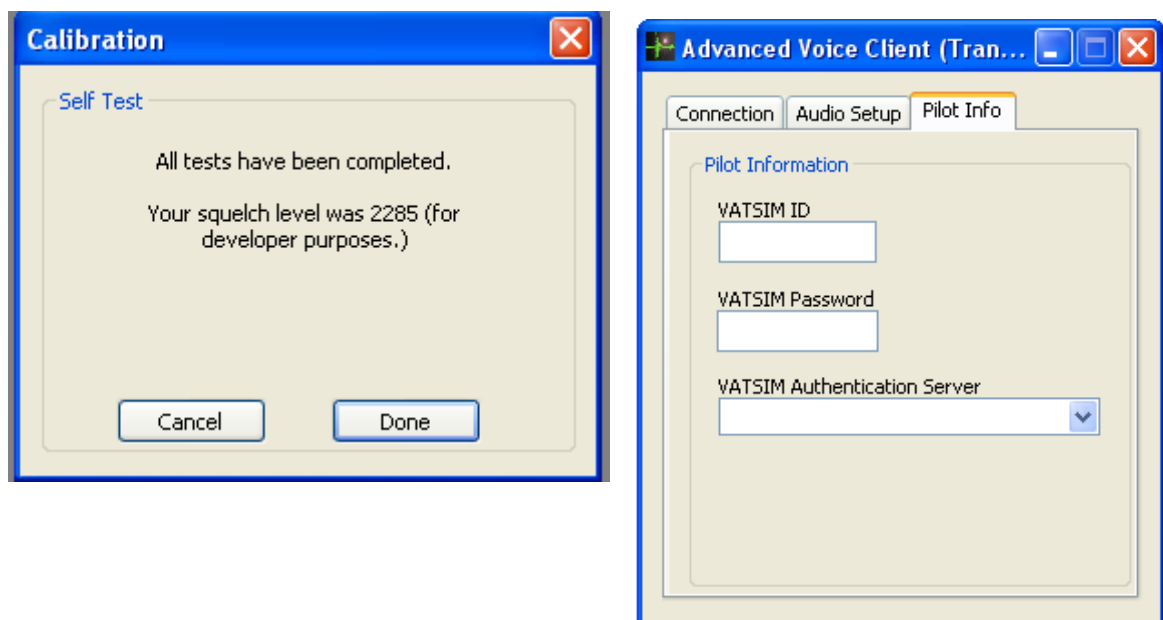If this occurs, adjust the settings in AVC first, and if the problem persists, adjust the values in your windows sound options. If the problem still persists, then try rerunning the test with the microphone unplugged for the background part of the test. This fools AVC into giving you a good "score" and does not appear to significantly affect voice transmission quality as received by others. Once you have got your mic working to your satisfaction (and AVC's) you will see the message: -

Next, select the "Pilot Info" tab and enter your VATSIM registration information. Leave the VATSIM Authentication Server field blank.

Finally, select the "Connection" tab and enter your preferred callsign in the Pilot Callsign field. This should be the aircraft registration letters, e.g. GGYAV.

Note that the hyphen commonly inserted after the first letter should be omitted.

Close AVC. AVC will now automatically connect to VATSIM when you start FSInn.

AVC will also remember your callsign, your VATSIM registration details, your PTT key and sound settings, and the IP address settings, so the connection process is much faster second time around.

4.4 Teamspeak

Teamspeak installation is also very straightforward. Double click the downloaded **TeamSpeak_Client_v2.0.32.60.exe** file and follow the on-screen instructions. Installation and set up for use with the Club is described fully in section 8 below.

5 FIRST TIME START UP

5.1 Start FS2004

Now start FS2004. When FS is loaded, if you are using the full screen display, open the menu ("Alt" key) and untick the "Full Screen" option in the "Views" menu for the moment. Once everything is set up and running, you can go back to full screen if you wish. A an easier alternative to using the menus, you may prefer to use the key combination <Alt><Enter> to toggle between Full screen or windowed mode if you can remember it among the many other inFlight Siulator.

When you have started FS, selected your flight and have your engine(s) running, first move off to a safe place for experimenting. If you are on a runway or taxiway in the way of other aircraft, taxi off to a corner of the apron and save the flight (the ; key) and tick the "Default flight" box, so that this will be your starting point for the next few connections until you get used to the procedure. When you are used to making the Vatsim connection, you will always start on the apron anyway, because your first job is to request taxi clearance. You can't just wander about where you like!
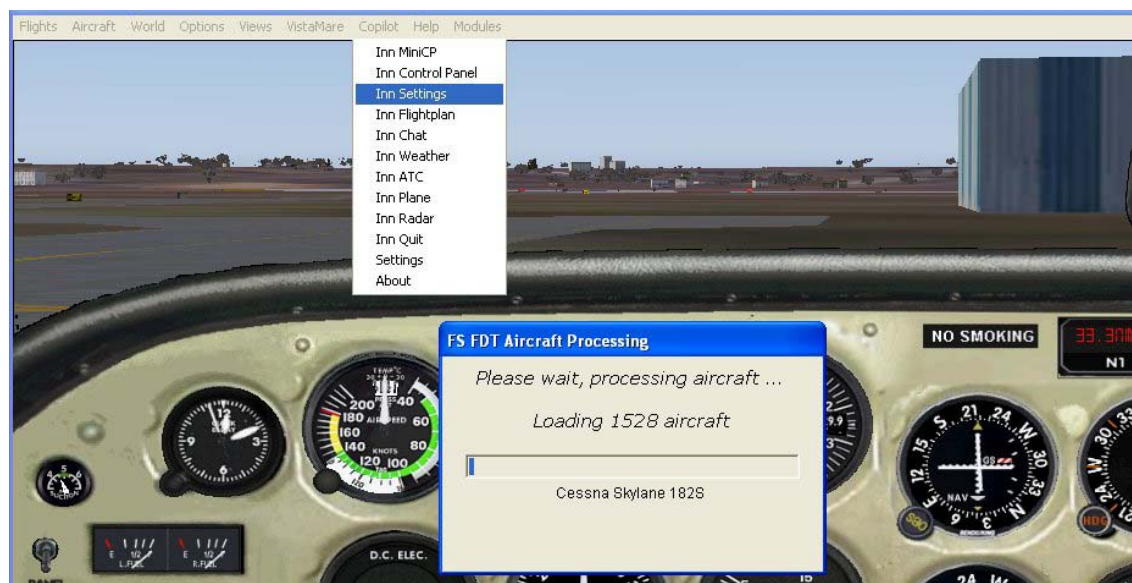
5.2   Connect to the Internet

If you do not have a Broadband connection, now is the time to connect to the Internet. This step **must** come before starting FSInn. Use the Start button in the bottom left and corner of the screen to find the Internet Explorer icon (Or Netscape etc) in the Start Menu. Alternatively, you can temporarily minimize FS and start Internet Explorer from the desktop icon, if you have one. The default screen on connection – usually a search engine – is irrelevant to the session at the moment, so you can minimize Internet Explorer.

5.3   Starting FSInn

Start FSInn from the 'Copilot' Menu in Flight Simulator. FSInn acts as a Multiplayer Host, so if you are running FS2004, it automatically connects you to the multiplayer session. If you are running FS2002, this must be done manually. Full details are set out in the Operation Manual.

The first time FSInn is run, the FSInn aircraft database has to be created on your PC from the aircraft in your Flight Simulator Aircraft folder.
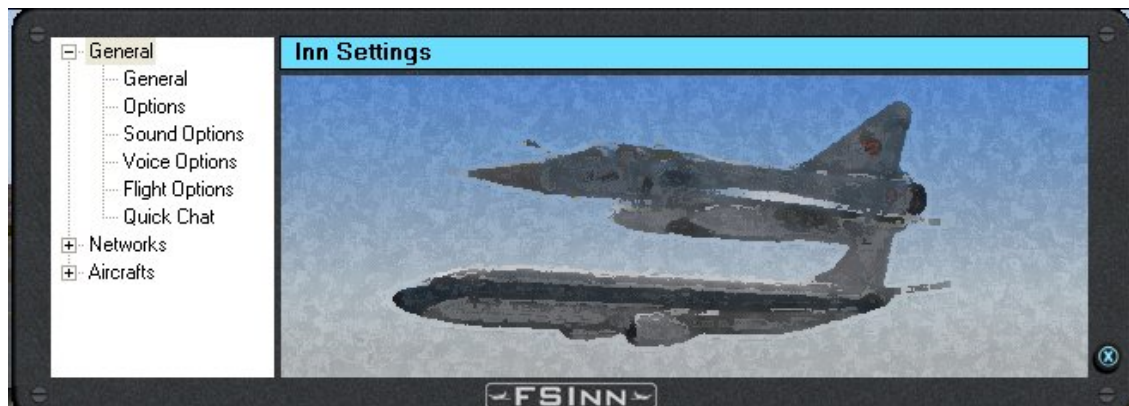

Aircraft Database Processing

As soon as you select any of the options from the 'Copilot' dropdown menu the process starts. This may take some time, depending on the number of aircraft installed on your system.

If there are errors in one of your aircraft's "aircraft.cfg" file, an error button is shown in the aircraft processing window. Clicking this button displays the error report in Windows Notepad. However, you can choose to continue without viewing any errors.

View errors in Aircraft in a Notepad file.

Next, select 'Inn Settings' from the Copilot dropdown menu and configure FSInn to your requirements by working down the menus in the left hand pane of the window which is displayed.

The Inn Settings Menu

The FSInn Operation Manual gives a clear description of each function in each screen, so you can work through them confident that you know what you are doing, (not always a foregone conclusion with software manuals) but you can accept all the defaults if you wish as you can always come back and alter them later when you have gained more experience of FSInn.

In this manual, any values which might be changed to your advantage are specifically mentioned.

You can change the default settings

For example, in the 'General' screen, the default Multiplayer Range setting is rather too big for the UK, particularly VFR flight, so this value should really be reduced to around 40 nautical miles. Similarly, the number of visible aircraft in a multiplayer session may be increased if you feel the default is too low. However, the FSInn Operation Manual recommendeds 15 as the maximum value for FS2002 users, and 30 for FS2004 users. If stationary aircraft are not shown, frame rates can improve, but if that isn't an issue, then clear the tick box to see all aircraft on the apron with you.

Similarly, in the 'Options' screen, you might also want to change some of the defaults. You will probably want to tick the first option "Allow FSInn to autoconnect to FS2004", and possibly untick the second option SELCAL, as it is a function that we in the Club will never use.
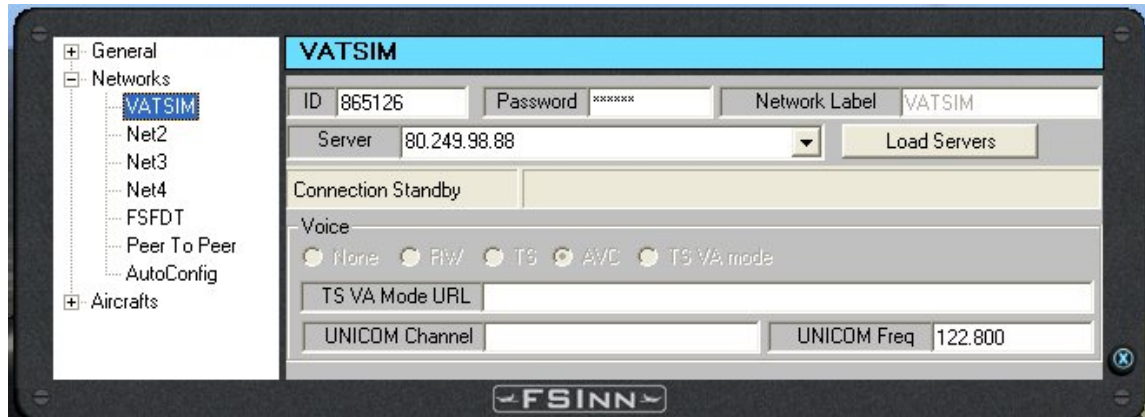
In the 'Sound Options' screen, you may prefer **not** to hear a sound when flying into an area with a manned ATC station or when approaching an ATC station with an active voice channel, or announcing that a written message has been received on the Private frequency. Because the Club doesn't use this last facility, it would not matter if you leave it ticked.

In the Flight options screen, you **should** click the radio button to select VFR as the default flight type for club flights, and enter the default transponder code for VFR flight in the UK, which is 7000. There is no default IFR code in the UK, so leave that field empty. The next screen, for configuring standard text messages sent via hot keys we shall ignore as it is unlikely to be used.

The next section 'Networks' has only one option of interest to club members – the 'VATSIM' option. This is where you enter your User ID number and password for connection to the VATSIM network, and the server you wish to use. By selecting the 'Load Servers' button, you can select from a list, rather than having to remember a particular URL. The one you want is

80.249.98.88 UK-1

For the time being, all the other 'Networks' options can be ignored, though you may want to set up and try a Peer to Peer connection one day, but that is outside the scope of this manual.

The final section, 'Aircrafts' allows you to select default aircraft. You may want to select one, but this is not essential. The second item in the 'Aircrafts' section allows you to reload aircraft from the mcdu repository at each startup, or to update your local copy when you choose. FSInn will load more quickly if you choose to update your aircraft file on demand rather than at every startup.

5.4   Connecting to the VATSIM Network

Having comp[leted the initial configuration, it is time to connect to the outside world. Click on the 'Copilot' table in the top menu bar and select the 'Inn Control Panel' option. The Inn Control Panel is displayed as shown below. A moment later, the multiplayer session is set up automatically, with the characteristic 'FSInn has joined the session' message appearing in the FS green message banner line. This message appears at every start up, indicating all is well thus far.

The Inn Control Panel

Now click on the VATSIM button. Several things now happen quite quickly.

Connected to VATSIM

First, you will hear a short medium-high pitched warble and the VATSIM button changes to green with a small cloud symbol next to it. This indicates that the weather is being taken from the VATSIM system, which in turn is taken from the real world from a Meteorological Station near your current position – perhaps from the same airport.

The Blue 'Chat' symbol flashes orange indicating that a text message has been sent. This initial text message is the VATSIM Terms and Conditions message, and it also scrolls across the screen as shown above. If you ignore the flashing symbol, it stops after a few moments.

5.5   Filing a Flight Plan

Once connected to the server, you need to complete a Flight Plan before you can take off (a VATSIM rule). You might prefer to create your flight plan before connecting to VATSIM, but you will not be able to send it until you connect. If you do complete a flight plan before connecting, save it, and then, once connected, reload it and send it.

Flight plans are remembered by FSInn for subsequent sessions, so that if you always use the same aircraft type, and fly VFR, then many of these boxes only need to be completed once. In every case, the flight plan will import your aircraft type and callsign from your Connect screen information. These two fields cannot be changed on the flight plan form.

Continue as follows: -

- Click on 'Copilot' in the main FS menu, then select 'Inn Flight Plan' from the FSInn dropdown menu, or click the 'FP' button on the 'Inn Control Panel'.

- Complete the Flight Plan form starting with Aircraft type and persons on Board. Note that the VFR box is already ticked, as it was set as a

preference during FSInn configuration. You can change this simply by clicking in the IFR box if necessary.

- Enter the 4-letter ICAO code for your Departure, Arrival and Alternate Airports.

- The Alternate is where you will go if the aerodrome you intend to land at is unavailable unexpectedly. It is a good idea to enter one even for circuits, because an aircraft landing before you might just land wheels up, and that closes the runway for the rest of the day.

There is a famous case of this happening to a lady student pilot on her first solo. Her instructor (on the ground of course) helped her plan a flight to an aerodrome 20 miles away while she was also flying orbits overhead her home field. She made the flight and landed successfully at the unfamiliar field. Both she and her instructor deservedly shared the CAA's Safety Award for that year.

The Inn Flight Plan

- In the 'Flight Route' box, you may optionally enter your route, using recognized waypoints such as VORs or Airports you intend to fly over, but for VFR flight it is often sufficient, and perfectly acceptable, to simply enter 'VFR'

- The true Airspeed is generally aircraft specific – for the Cessna 172, it is typically 105 knots. This information is available from the Aircraft menu in FS.

- In the 'Remarks' box it is customary for Club members to enter 'Cix VFR Club'. You can also add 'Daytime flight' or 'Night Flight' if you wish, as although most VATSIM flights take place in the evenings, and it may actually be dark outside your window, you can of course select any time you wish within FS. This information enables the controllers en route to handle your flight appropriately.

- Finally, enter the Departure Time, Time En Route and fuel. The Cessna 172 has a fuel endurance of 4 hours 30 minutes starting with full tanks.

Finally click "Send to Tower", and that's it – job done.

5.6   Tuning In to an Air Traffic Controller

If not already open, open the 'Inn Control Panel' from the 'Copilot' top menu bar, then click the 'ATC' button. A list of the ATC units within range is then displayed, together with their frequencies. Assuming you are at the Club's Biggin Hill operating base, and Biggin Hill Approach is manned, then you should see among the list:

EGKB_APP (129.40)

The APP letters mean that it is an Approach frequency, not Tower. Sometimes, both TWR and APP will be manned at the airfield, sometimes just Tower. If both are manned you should select the Tower frequency while on the ground. Once you are airborne, the Tower controller will "hand you over" to the Approach Controller (even though you are departing, not approaching!).

To tune in the frequency in order to send and receive either voice or text messages, select the correct frequency on the aircraft radios. If you are unsure how to do this, check the Flight Simulator Help system. When you have tuned the frequency, a short warbling sound is heard to confirm the connection.

When you first connect to a frequency, the Automated Terminal Information Service (ATIS), if one is available for that frequency, will be sent from the VATSIM server and displayed on screen as the familiar message banner used by FS. Unlike the real world, where ATIS is a voice recording giving a lot of detail, this ATIS message is often quite brief – giving a link to the Vatsim web site, and optionally, the time that the controller will be on duty. Occasionally controllers will publish something akin to the real world ATIS, with the landing and departing runway in use with wind speed and cloud information.

When you disconnect from a frequency a short "raspberry" sound is heard to confirm the disconnection. Note that no sound is heard if you attempt voice communications when no active ATC unit is tuned in on your FS radios.

5.7   Testing Testing

All that remains now is to summon a huge resource of courage (I know – I've been there), press your chosen PTT switch on the keyboard and say: -

Biggin Approach, Golf Golf Yankee Alpha Victor, on the Apron south of the tower. Request radio check.

The controller will reply: -

Golf Golf Yankee Alpha Victor, reading you strength five, how do you read.

And you reply: -

Biggin Approach, Golf Golf Yankee Alpha Victor, reading you strength five also, Alpha Victor out.

6   ROUTINE STARTUP

6.1   Connecting to VATSIM

The next time you connect to VATSIM using FSInn, and all subsequent occasions, the "General" screen will already contain your details. Once Flight Simulator has started, start AVC and minimize its window, then open the 'Inn Control Panel' from the 'Copilot' top menu bar, and click the 'VATSIM' button.

6.2   Filing a Flight Plan

Your previous flight plan will be displayed when you select the Flight Plan option. For a new flight, simply change the few details necessary. If you get into the habit of saving your flight plans, then if you are repeating a flight, you can load the flight plan from your saved library.

6.3   Talking to ATC

Click the 'ATC' button in the 'Inn Control Panel' and tune your radio from the list displayed. Make a Radio Check when ready, and off you go into the world of flying with live ATC.

The Club has published its own ATC for Pilots document, the latest version (1.2) of which is available free, downloadable from the web site.

6.4   The FSInn Mini Control Panel

Once you are used to FSInn you can select the 'Inn MiniCP' option from the 'Copilot' menu to select your ATC and Flight Plan functions. This miniaturized control panel has a very abbreviated menu and occupies only a small space on screen.   If you know the frequencies you are going to use on your flight, you can, if you wish, switch even this small panel off and fly with no visible evidence that FSInn is running, selecting it only from the 'Copilot' top menu bar option if

required. However, if you choose this option, you will not receive visible evidence of any text messages, only audible signals, so you might want to make sure that all the audible signals you need are enabled in the 'Inn Settings' General screens under 'Sound Options'.

6.5   Mode Charlie

In the real world your Transponder is normally fitted with a 'Mode C' altitude encoding transmitter. This sends to ATC radar screens your altitude (decoded from the aircraft altimeter) along with the conspicuity code sent by the transponder itself. Whilst aircraft are on the ground at airports, controllers often ask for pilots to "Squawk Standby" that is, for 'Mode C' to be turned off to reduce screen clutter. Then, once you are airborne, they will ask you to "Squawk Mode Charlie". This is aviation-speak for switching on Mode 'C' (Charlie) so that controllers know your altitude. If you are asked to "Squawk Ident" this sends a separate signal which momentarily turns on a special symbol on the ATC radar screen to draw his attention to you in particular if he has a lot of traffic on his screen.

With VATSIM, a small software function behaves as a Mode 'C' transmitter, reading the altimeter data from your running Flight Simulator, using FSUIPC, and sending it to the Vatsim servers along with your other flight data. This is then displayed on the controller's screen. VATSIM controllers don't like screen clutter any more than their real world counterparts, so the same instructions will be issued to pilots as in the real world.

In FSInn this is a simple task – simply click the orange box at the top containing the letter 'S' (Standby) at the top of the minipanel, to switch on Mode 'C' which then changes to a green box containing the letter 'C' (for Charlie) (shown right). If you double click it, then it will momentarily "Squawk ident" – a yellow box containing the letter 'I' before again returning to click the green box containing the letter C. To turn Mode Charlie off, click once the green box containing the letter C, and it will change back to an orange box containing the letter 'S'.

6.6   More FSInn Options

There are many more functions within FSInn which you may wish to make use of, but this tutorial is limited to getting you connected, flying and talking to ATC with the Club, so the extra features in FSInn can be explored by reading the operating manual.

7   USING MULTIPLE PCS

Flight Simulator uses a large amount of your computer's resources. Running Flight Simulator, FSInn, and TeamSpeak, and possibly other utilities such as FSNavigator all on one computer can overload it, causing problems. If you have

a second PC, then by networking them together you can share this load between both. If you have upgraded your PC and kept the old one, consider bringing it back into service for running the FS ancillaries, which do not place a heavy burden on the CPU or memory.

For the purposes of this tutorial, it is assumed that the machines are already networked and communicating satisfactorily with each other, and that you will run Flight Simulator on one PC, and everything else on the other. However, you can divide the load to suit your personal preferences.

7.1   FSInn Installation on A Remote PC

You need to install FSInn on the PC running Flight Simulator AND on the auxiliary PC. Make sure you install FSInn on the Flight Simulator PC first. The installation is straightforward, but if you need help, consult the FSInn Operating Manual, where the procedure is clearly set out.

7.2   Additional Software Required

Peter Dowson's WideFS is the essential tool for using two (or more) PCs for Flight Simulator and ancillaries. You also need the payware version of FSUIPC to ensure that all the desirable functions can be set up. Wide FS will not work without FSUIPC. The two packages need to be compatible, so when downloading an upgrade for the one, always check to see if there is an upgrade available for the other at the same time. (Peter Dowson always recommends using the latest version of each, and normally updates both at the same time - 6.50 and 3.50 were released together.) WideFS version 6.50 requires FSUIPC 3.44 or later. The good news is that the reasonably frequent upgrades of these two programs are entirely free to registered users.

7.3   Installing the Additional Software

Both FSUIPC and WideFS are extremely simple to install, and the instructions given in the Operation Manual are clear and obvious, if a bit buried in a fascinating essay about how it all works. In a nutshell: -

1)   Unzip FSUIPC.zip into a folder of your choice on the PC running Flight Simulator – a dedicated FSUIPC folder is best.
2)   On the PC which will be running Flight Simulator, copy the file FSUIPC.dll which you should see in the folder, to the Modules folder of Flight Simulator 2004.
3)   Unzip WideFS.zip into a folder of your choice on the PC which will NOT be running Flight Simulator – a dedicated WideFS folder is best.
4)   Copy the files WideServer.dll and WideServer.Ini to the Modules folder of Flight Simulator on the PC which will be running Flight Simulator.
5)   On the PC which will NOT be running Flight Simulator, it is a good idea to create a shortcut to WideClient.Exe and place it on the desktop or in

the Quick Start area of the Task Bar. This helps remind you to run WideFS before starting FSInn.

Of course, if you have already installed FSUIPC, start at step 3 above.

7.4   Working with Multiple PCs.

The only important requirement for a smooth start up of Flight Simulator and FSInn on multiple PCs is to start WideFS on the PC which is NOT running Flight Simulator, before any other software which needs to interface directly with FS. FSUIPC will load with Flight Simulator and "talk" to WideFS.

8   USING TEAMSPEAK

The Club uses TeamSpeak, an Internet voice client application, during our meetings and events. You talk to ATC using AVC, but you have TeamSpeak loaded at the same time to chat informally to other members. You will need a PTT switch for TeamSpeak too, and having the FSInn one on the yoke (see section 9) and the TeamSpeak one as a keyboard key tends to avoid confusion. (After all, you don't want to be telling ATC that you don't know where you are, unless you really need to!).

TeamSpeak has excellent voice quality and functionality. The Club have had very few, if any, problems in using it. Most members running Windows XP can run TeamSpeak and FSInn simultaneously without difficulty. TeamSpeak gives us the ability to talk pilot to pilot without involving ATC, and thus can be used for training, and help-as-you-fly.

8.1   Installation

Installation is straightforward. Double click the downloaded **TeamSpeak_Client_v2.0.32.60.exe** file and follow the on-screen instructions. Accept the default installation directory   The installation will place a TeamSpeak icon on your desktop during installation, which is very useful.

8.2   Set Up a TeamSpeak PTT Button on the Keyboard

The next stage is to set up a PTT button on your computer keyboard. This has to be a different one to that which you use with FSInn. A key which does not auto-repeat is necessary. The most commonly used is the RIGHT-CONTROL Key. On some systems, particularly laptop computers, the LEFT-CONTROL key and the RIGHT-CONTROL key are not separately identified, so it is preferable not to use the LEFT-CONTROL key for FSInn unless you are sure that there is no conflict. The Caps Lock key can often be used successfully.

Click on the "Settings" main menu bar option, followed by Sound Input/Output from the dropdown menu. Click the Push to Talk radio button (we don't want to use voice activation), then press the Set Button and then press the RIGHT CONTROL Key. Set the Output volume slider to the midpoint "Normal" position. Finally press Close on this menu.

8.3   Options Set Up

Click on the "Settings" main menu bar option, followed by "Options" from the dropdown menu. Set up the following parameters.

8.3.1   Sound Devices Tab

Select the Wave radio button as the "Sound Driver" and move the "Direct Sound Buffer Size" slider fully right to "Better Sound Quality". This has no effect using Wave sound, but if later we select "Direct Sound" to produce better sound quality, then setting this slider to the right is necessary.

8.3.2   Sound Notifications Tab

Select the Sound Notifications slider to about 30%, otherwise the anonymous lady announcer within TeamSpeak will deafen you when a member joins or leaves.

8.3.3   Bandwidth Tab

This can be skipped.

8.3.4   Other Tab

Tick the "Show Item in Traybar" tickbox, and select the Process Priority High radio button. This makes sure you can use TeamSpeak while running Flight Simulator. Ignore other settings.

8.4   Key Settings

It is useful to set up an AWAY key and a MUTE TeamSpeak key to enable you to show other users that you have left your PC for a few minutes with (the away key) and to silence TeamSpeak if other members are talking and ATC is calling you.

8.4.1   Away Key

Click on the "Settings" main menu bar option, followed by "Key Settings" from the dropdown menu. In the Key Bindings window, click "Add", then select TOGGLE from the "Action" pick list box. From the pick list box to the right select AWAY. Click the "Set" button above the "Action" Box and press the RIGHT ALT GR key (to the right of the spacebar on the keyboard). Click OK.
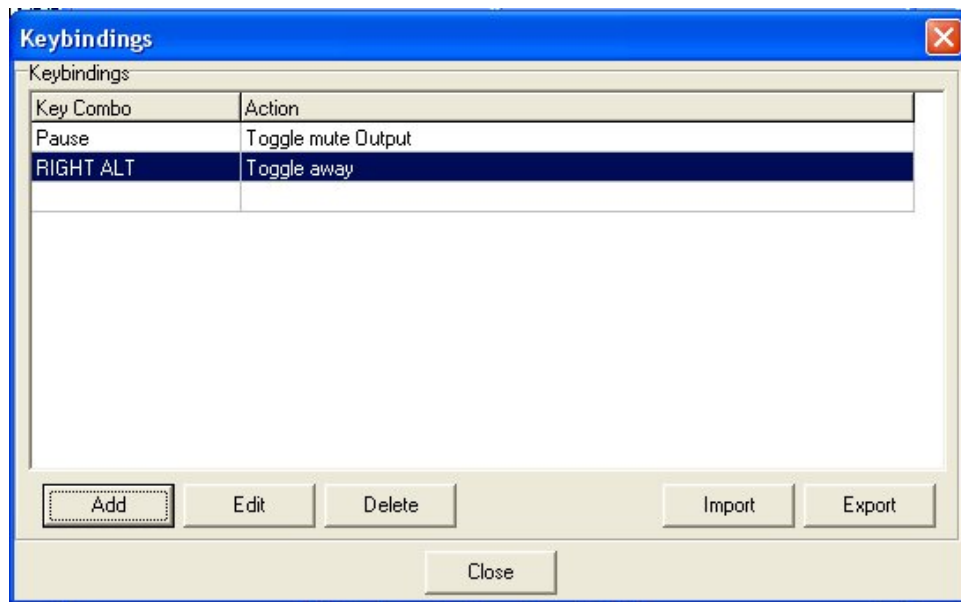
The Key Bindings Dialogue Box

8.4.2 Mute Key

Click on the "Settings" main menu bar option, followed by "Key Settings" from the dropdown menu. In the Key Bindings window, click "Add", then select TOGGLE from the "Action" pick list box. From the pick list box to the right select MUTE.

Click the "Set" button above the "Action" Box and press the PAUSE/BREAK key (to the upper right of the keyboard next to "Scroll Lock"). Click OK. The Keybindings window should now look like the screenshot below.

"Mute" and "Away" keys set

8.5   Connections

When you joined the Club, the Membership Secretary, Peter Allnutt, will have given you a TeamSpeak login name and password. With this information to hand, click on the "Connections" main menu bar option, followed by "Connect" from the dropdown menu. The following screen appears.

Right-click anywhere in the large white box and select ADD SERVER from the menu. Type "Cix VFR Club" (without the quotes of course). Press the keyboard "Enter" key.

Complete the following details.

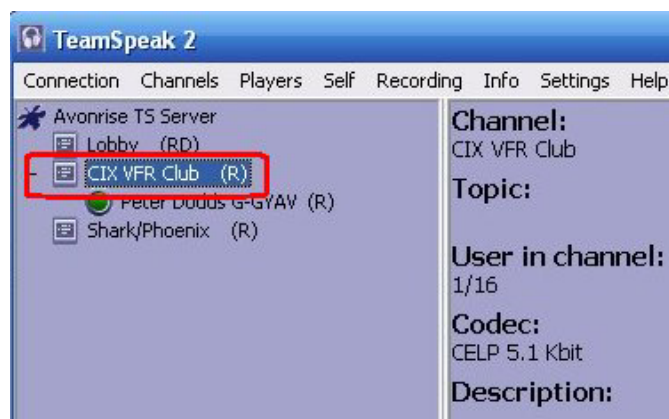|	
Server Address	ts.cixvfrclub.org.uk
Nickname	Your first and last name and (optionally) the aircraft registration that you use in the Club. Do not use non-text characters such as (or *
Allow Server Nickname	Leave blank
Anonymous or Registered	Select the "Registered" radio button
Login Name	Provided by Peter Allnutt when you join the Club
User Password	Provided by Pete Allnutt when you join the Club
Auto-Reconnect	Tick this tick box
Default Channel	Leave blank
Default sub-Channel	Leave blank
Channel Password	Leave blank

The TeamSpeak Connection Screen

Once the details have been entered, click the CONNECT button at the bottom of the window, and you should be connected with the following window displayed if there is no-one else on line.

For future TeamSpeak sessions, these details are remembered and shown in the list of Servers on the left pane of the window. Simply click the chosen Server once to display its details, followed by the CONNECT button.

Connected to the Club TeamSpeak Server

To move from the lobby to the Club specific voice "Room", simply double click the "*CIX* VFR Club" label, as indicated below.

Double Click the Label to Move "Rooms"

There are other options within TeamSpeak, including the facility to send a private text message to just one of the members connected, or the setting up of additional "rooms" for confidential conversations etc. For the Club's purposes, however, this tutorial covers all that you need to talk to other members. When you come to disconnect, simply click on the "Connections" main menu option, followed by "Disconnect" from the dropdown menu.
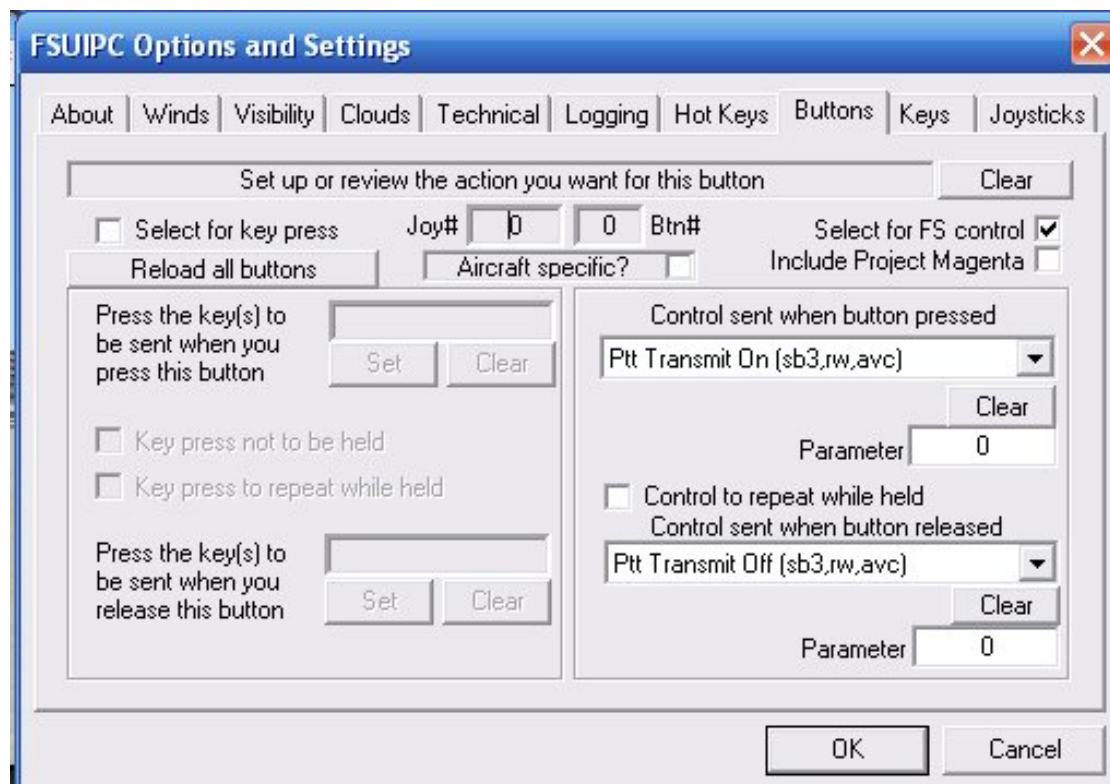
9   SETTING UP A PTT BUTTON ON THE YOKE

If you have enough buttons on your yoke or joystick, it is highly recommended to assign a yoke button as your ATC Press to Talk (PTT) button. This is not only true to real world practice; it helps avoid any confusion about which keyboard button to press for ATC, and which for the Club TeamSpeak service.

Note: This feature is only available for registered versions of FSUIPC. Once you have installed FSUIPC, setting up a yoke PTT key couldn't be simpler with the new versions of FSUIPC (3.50) and Wide FS (6.50).

1)   Start Flight Simulator
2)   Open FSUIPC from the 'Modules' menu option
3)   In FSUIPC, select the buttons tab.
4)   Press the yoke button you want to use.
5)   Tick the "Select for FS Control" tickbox.
6)   Open the dropdown list in the "Control sent when button pressed" box
7)   Scroll down to Ptt Transmit On (sb3, rw, avc)"
8)   Open the dropdown list in the "Control sent when button released" box
9)   Scroll down to "Ptt Transmit Off (sb3, rw, avc)"
10)   Click OK to close the FSUIPC window.

The procedure is identical if you have two PCs and are running WideFS and FSInn on PC2, with Flight Simulator running on PC1, with the yoke plugged into PC1.

On a network, when starting up your Flight Simulator system, you must start WideFS first (on PC 2), then Flight Simulator on PC 1, then FSInn on PC 2, in order that FSInn can find the Flight Simulator session.

FSUIPC Screen Set up for a PTT Button on the Yoke

10   READY TO FLY

Once you have successfully tested your software, your personal preferences of PTT and command keys etc., and your voice communication system, you are almost ready to start flying. If you have no previous experience of Flight Simulator or real world flying, then the tutorials in the Training section of the Club web site should help you. The FS2004 Help & Learning Centre goes into a lot of detail about aviation in general as well as help on the actual software, and also deserves study. If you know any real world private pilots, you may also be able to also borrow their training manuals, written by Trevor Thom. Or you could buy your own from Pilot shops such as Transair or Flightshop, but they are a bit expensive for "mere" simulator pilots. Do a web search on "Trevor Thom" and you will find plenty of links.

The standard dialogue used in Air Traffic Control is a "must learn", as using non-standard phraseology is much frowned on, in both the real and the virtual aviation world. In the Club, beginners can expect a lot of help to get going with the unfamiliar language, but you are expected to get better and more realistic relatively quickly. There is a comprehensive radiotelephony tutorial for Club use in the Training section of the Club web site, and if you want it from the horses mouth, the Civil Aviation Authority (CAA) publish a Radiotelephony Manual – CAP 413, which is available free on their web site. See http://www.caa.co.uk/docs/33/CAP413.PDF .

OK, so you have boned up on the flying techniques, and the RT phraseology, and you are itching to get started. The *CIX* VFR Club meets regularly at Gloucestershire Airport on Tuesday evenings, and Biggin Hill on Thursday evenings. Before connecting to VATSIM via FSInn, park on the main apron of either airfield (absolutely never on a runway – someone might be landing as you connect and "pop up" in front of them!). Open your Club TeamSpeak connection and have a chat with other members.

You may choose to sit and "listen in" for an evening – no-one will pressure you into doing anything – this is a hobby! When you feel ready to make a flight, we recommended a short flight of perhaps 30 minutes out of the aerodrome traffic zone and back. Flying circuits, although excellent training, is not the best way to learn the ropes from scratch, as the workload is too high for beginners. Always remember that in the *CIX* VFR Club, we are all here to help you get the most out of membership and VATSIM.

VATSIM UK also run beginners nights to help you get started flying and getting used to connecting to vatsim and using text or voice ATC. Details of these are posted on the VTSIM UK Forum, which it probably a good idea to join anyway to keep abreast of things happening on VATSIM outside our Club (and there are many events other than those we run ourselves).

Have a good flight!