

**The**  
**CIX**  
**VFR Club**

**AIR TRAFFIC  
CONTROL  
MANUAL**  
**for**  
**VATSIM**  
**VFR PILOTS**

**NOT TO BE USED FOR REAL WORLD AVIATION**

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CIX VFR Club members can contact the club for any  
comments or clarification through the forum:

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## Document History

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12/02/2004	1.1	Some Aviation law errors corrected. Sections added on CTR clearances and SVFR Minor amendments to text throughout document.
10/10/2005	1.2	Minor corrections made.
15/01/2006	1.3	Minor corrections made
08/03/2009	1.4	Minor corrections made
15/04/2011	1.5	Significantly rewritten and updated
01/07/2013	2.0	Completely revised and updated. AFIS and AGCS communication procedures added.
12/07/2013	2.01	Minor corrections made.
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Mark Brown	VATSIM Pilot
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## 1. GENERAL INFORMATION

This manual is intended for use by Flight Simulator (FS) pilots who are members of one of the online communities. It is written with specific reference to VATSIM, but is equally applicable to IVAO or any other online service, and reflects real world Air Traffic Control rules and procedures as accurately as necessary. It is designed to help virtual pilots perform as realistically as possible, which is one of the things which makes the hobby so enjoyable. It takes as its basis a number of UK Civil Aviation Authority publications, but generally extracts from these only the information required for online general aviation flight in a desktop Flight Simulator. (The term Flight Simulator in this document refers to any PC flight simulator program, including the Microsoft Flight Simulator series and Laminar Research X-Plane.)

Version 2.2 is a revision with all dialogue and procedures updated to the current 2023 standard. The manual now also contains the ATS information for Aerodrome Flight Information Service (AFIS) and Air / Ground Radio Communication Service (AGCS), and Emergency ATS procedures.

There are many terms in this manual that will be unfamiliar to non-pilots. Please refer to the Acronyms and Abbreviations at section 2.5.3 and the Abbreviations Section at section 8 for an explanation.

### 1.1 Virtual Air Traffic Controllers

Real world Air Traffic Controllers have a VERY demanding job, which is why they only ever do 2 hours on duty at a time. VATSIM Controllers also have a demanding time sometimes, but they are doing it for FUN. It isn't a job. In fact, one of the rules of VATSIM is that members should have fun.

The relationship between controller and pilot is a partnership. Each wants the same result; an enjoyable hobby experience with the satisfaction of a successful outcome. Neither controller nor pilot should ever fall into the error of trying to be too clever; taking realism to the nth degree. That simply spoils the enjoyment for at least one of the partners.

Note that a real-world Air Traffic Controller will never give a pilot a "telling off" whilst he is flying. That is potentially dangerous if the pilot is already under stress. Rather, the Controller guides the pilot calmly to a safe outcome. However, the instruction "[Golf-Golf Yankee Alpha Victor, please report to the Tower](#)" after an aircraft has landed, is quite likely to turn its pilot's legs to jelly. But at least this will happen when he is safely on the ground. This should also be the case on VATSIM, but sadly, sometimes it isn't. Inexperienced pilots and inexperienced controllers both need to learn. Patience and tolerance should therefore be one of the characteristics of our hobby.

However, no matter what ATC or other pilots say or do, when a difficult situation arises and heart rate increases, the golden rule of flying, above all else is: -

AVIATE : NAVIGATE : COMMUNICATE

To that, one could add, for Flight Simulator pilots online, if it all goes pear shaped – disconnect (which is actually one of the VATSIM Rules of Conduct).

## 1.2 Speed and Distance Measurements

Although many older aircraft have their airspeed indicators calibrated in miles per hour, the internationally recognized units are knots for speed, and nautical miles for horizontal distance.

Altitude is in feet in the UK and USA, and most of the rest of the world. In some Commonwealth of Independent States countries and parts of Asia, metres are used instead. Terrain elevation is in feet in the UK and the USA, and in metres on European charts.

A nautical mile is one minute ( $1/60^{\text{th}}$  of a degree) of longitude (or latitude if and only if measured at the equator). It is equivalent to 6072 feet or 1.15 statute miles (1.85 kilometres).

One knot is one nautical mile per hour.

In our sailing heritage, when the “log” was thrown overboard and trailed behind the ship, the speed was measured by the number of knots in the rope attached to it, which were counted in a given time. Thus we have speed being measured in knots!

## 1.3 Visual Flight Rules

Pilots flying under Visual Flight Rules (VFR) in a fixed wing aircraft below 3000ft and **outside** controlled airspace must fly at all times with the surface in sight, 1500 metres horizontally and 1000 feet vertically clear of cloud and with a horizontal visibility of 5 kilometres or more. If the aircraft’s speed is 140 knots or less, then it is sufficient to fly with the surface in sight, clear of cloud and with a horizontal visibility of 1500 metres or more.

Pilots flying under Visual Flight Rules (VFR) in a fixed wing aircraft below 3000ft and **within** controlled airspace must fly at all times with the surface in sight, 1500 metres horizontally and 1000 feet vertically clear of cloud and with a horizontal visibility of 5 kilometres or more. At speeds of 140 knots or less, then it is sufficient to fly with the surface in sight, clear of cloud and with a horizontal visibility of 5 kilometres or more.

The full rules cover flight at higher altitudes and flight within controlled airspace, and may be found in the UK AIP at ENR 1.2 and on page 59 of the [Skyway Code \(CAP 1535P\)](#).

## 1.4 Traffic Priority - Light and Large

Aircraft are classified into 2 groups. Those with a maximum all-up weight (MAUW) up to 5700 kilograms are classified as "Light". MAUW includes the weight of the empty aircraft itself, fuel, and payload (crew, passengers and baggage). All others are classified as "Large". See [http://www.easa.europa.eu/agency-measures/certification-specifications.php - CS-23](http://www.easa.europa.eu/agency-measures/certification-specifications.php-CS-23) for full details.

### 1.4.1 Priority by Performance

The major effect of this classification in the ATC environment is that light normally gives way to heavy, because heavy aircraft are normally faster, less manoeuvrable, and being mostly commercially operated, more important than light aircraft flown for pleasure. Of course on VATSIM, all aircraft are flown for pleasure, but controllers will tend to work to real world procedures. Thus, if two aircraft are approaching to land, the large one, or the faster one (which is usually one and the



same) will be given priority, and if necessary, the light (slower) aircraft will be instructed to “hold” at a given location until the large aircraft has landed.

#### 1.4.2 Wake Turbulence Category

There is also a classification known as the Wake Turbulence Category (WTC). This separates aircraft into Light, Small, Lower Medium, Upper Medium, Heavy and Super-heavy WTC classes based on the strength of the wind currents in their wake. These strong currents are a by-product of the wings producing lift, and can disturb the flight on an aircraft following too closely behind: it has been known for light aircraft to be turned over completely on late final approach by the swirling vortices produced by big wings. The Wake Turbulence Category of an aircraft is not the same as its weight class, but the two are related (the heavier the aircraft, the more lift force its wings generate, the stronger the wake).

The Wake Turbulence Category determines how the aircraft is handled by ATC to avoid the wake hazard. For example, a light WTC aircraft landing behind a heavier WTC has to remain behind the heavy by typically 6 nautical miles (the distance varies). A lighter WTC aircraft departing from the same runway as a heavy aircraft may be instructed to wait until the vortices have dispersed sufficiently. (Wake vortices start from where an aircraft rotates just before lifting off, so if you can lift off before that point, the turbulence can be avoided.)

Wake turbulence is not modelled in default Flight Simulator, but add-on weather programs such as Active Sky do model it accurately. On VATSIM, as in the real world, ATC should give pilots flying visually a wake turbulence warning such as “caution wake turbulence. Recommended distance six miles”. It is the VFR pilot's responsibility to avoid the wake.

### 1.5 Types of Air Traffic Service

There are three basic types of Air Traffic Service.

- a) Air/Ground Communication Service (AGCS)
- b) Aerodrome Flight Information Service (AFIS)
- c) Air Traffic Control (ATC)

The difference between a, b, and c is the level of service given to pilots.

AGCS is used at most small General Aviation (GA) airfields and provides **information** only to pilots who must make their own decisions based on the information given. An AFIS service is something of a hybrid between ATC and AGCS and is used at slightly busier aerodromes. Under an AFIS, pilots are given information and **advice** while airborne, taking off and landing, but **instructions** for manoeuvring on the ground.

With certain exceptions, Air Traffic Control provides pilots with **instructions** both on the ground and while airborne, taking off and landing. This may include an aircraft being instructed to fly at particular altitudes and on particular headings in order to comply with instrument flight procedures or to avoid traffic conflicts; a procedure known as Radar Vectoring. Radar Vectoring is mostly applicable to flight under Instrument Flight Rules (IFR), so Cix VFR Club members need not concern themselves with it when flying under VFR.

## 1.6 Controlled and Uncontrolled Airspace

Airspace is divided into two main types; controlled and uncontrolled. Controlled airspace, as its name suggests, is airspace in which mandatory ATC services are provided for some flights. Uncontrolled airspace does not have air traffic *control*, in that nobody will tell you what to *do*, but some ATSU's might provide information and advisory services.

Note that IFR traffic does not *have* to fly in controlled airspace. Some IFR traffic, such as private flights, air taxis, medical flights etc. may choose for operational reasons not to "participate" and can fly IFR outside controlled airspace. However, IFR traffic in the real world must always be in contact with an ATS unit. On VATSIM, of course, this may not always be possible.

Airspace is classified into seven classes in international air law according to what types of flight may operate in them (VFR, IFR), the entry/flight requirements (permission, flight rules, flight visibility), and the level of service (separation, traffic advisories) provided to each type of flight. For the VFR pilot in the UK, there are only four with which they need to concern themselves: - Class A, Class D, Class E and Class F/G.

Class A: VFR flight is not permitted in Class A airspace under any circumstances. In the UK, it never reaches ground level.

Class D: This is airspace around larger aerodromes in which VFR traffic is not permitted to enter without specific clearance from ATC. Aircraft without radios are not normally permitted. All flights are provided with air traffic control service. IFR flights are separated from other IFR flights and receive traffic information in respect of VFR flights, and VFR flights receive traffic information in respect of all other flights.

**Note: Pilots flying under VFR MUST NOT ENTER Class D airspace without permission and a specific clearance from the ATC unit, and must obey instructions from ATC.**

A VFR clearance will typically be granted for Class D airspace if the VFR minima can be met. If VFR conditions cannot be met in a Class D Control Zone, a Special VFR (SVFR) clearance may be granted. See section 3.14 for details of Special VFR Flight.

Class E: IFR and VFR flights are permitted. IFR flights are provided with air traffic control service and are separated from other IFR flights and receive traffic information on all known flights. VFR flights can receive traffic information as far as practical if they request a Basic or Traffic Service. Class E is not for Control Zones.

The VFR minima for Classes D and E airspace are an in-flight visibility of 5km or more; 1000 feet vertically and 1500 metres horizontally clear of cloud, and with the surface in sight. For aircraft flying below 3000 feet and at 140 knots or less, being clear of cloud and with the surface in sight is sufficient. The in-flight visibility minimum of 5km **is** required.

Class F and G airspaces are uncontrolled airspaces, and are discussed more in section 1.8.

## 1.7 Controlled Airspaces

The large airports have a significant area of country embraced by controlled airspace which falls into four categories. These three-dimensional blocks of the atmosphere, several cubic miles in size and with, of course, entirely invisible

boundaries become so engrained in the pilot's thinking that they might as well have brick walls, floors and ceilings!

### 1.7.1 Terminal Manoeuvring Areas

Terminal Manoeuvring Areas (TMAs) are large areas of controlled airspace (often covering one or two counties or more!) and, with the exception of the Scottish TMA, are Class A airspace. They are used for arriving and departing commercial traffic flying entirely under IFR. Although VFR traffic is prohibited from the Class A TMAs, fortunately they extend from a base level of a few thousand feet so that GA traffic does not have to go round them, but can go underneath them. There are three TMAs in the UK:

- London TMA – Base level 2500-4500 feet (varies)
- Manchester TMA – Base level 3500 feet
- Scottish TMA – Base level 2500 - 4000 feet (varies)

The Scottish TMA is Class D Airspace, with a small section of Class E.

### 1.7.2 Control Areas

Control Areas (CTAs) are smaller than TMAs and cover the arrival and departure corridors of smaller airports such as Luton, East Midlands and Birmingham. All airport Control Areas in the UK are Class D. The base level of a CTA is some thousands of feet above the ground as they are protecting inbound and outbound traffic which is already airborne. The top of a CTA usually coincides with the base of the ATS Route system, which is all Class C and A airspace, so that "participating" IFR traffic is always flying within controlled airspace. VFR traffic may "transit" Class D CTAs with ATC permission.

### 1.7.3 Control Zones

Control Zones (CTRs) are smaller again than CTAs – perhaps 20 miles across north to south and east to west. They are used to protect landing and departing IFR traffic and are all Class D airspace, and extend from the surface. The top of a CTR usually if not invariably coincides with the top of that airport's CTA. VFR traffic wishing to land at one of these airports must request a VFR clearance to enter the Control Zone in order to do so.

Once again, the one exception to this rule is the London CTR around Heathrow airport. As one of the busiest airports in the world, with an arriving aircraft every 2 minutes and similar departing, one's Cessna 152 is very definitely not welcome, and an inner zone is reserved for IFR flights only. A VFR clearance to transit the outer parts of the CTR may be granted, and indeed helicopters regularly fly VFR at low level through the CTR via designated routes.

### 1.7.4 Aerodrome Traffic Zones

Aerodrome Traffic Zones (ATZs) are a special little area of controlled airspace which surround all **Licensed** Airfields including those controlled by CTRs etc. Unlike the other types of Airfield protection airspace, which may be any shape, depending on traffic requirements, ATZs are circular with a radius of 2 nautical miles (nm), unless the runway is 1850 metres in length or more, in which case the ATZ is 2.5nm in radius.

An aircraft should enter an ATZ only with the permission of the Air Traffic Controller, and of course, in the case of small aerodromes, this means the

Air/Ground radio operator or the Aerodrome Flight information Service Officer (AFISO) (see Section 1.5 above).

Where an aerodrome has “Prior Permission Required” (PPR) included in its particulars as printed in the Air Pilot (the aviation law “Bible”) or one of the published Flight Guides such as “Pooleys”, it means that pilots must not land without express permission from the airfield operator. This requirement does not arise within the VATSIM environment and can be disregarded.

### **1.7.5 Military Aerodrome Traffic Zones**

The final type of aerodrome protective airspace is the Military Aerodrome Traffic Zone, or MATZ (pronounced “mats”). Surprisingly perhaps, it is not mandatory to request permission from the ATCO at the military aerodrome to transit a MATZ, but it is ALWAYS good airmanship to do so. There is a standard radio procedure for this outlined in section 6.5.5 below.

### **1.7.6 Exceptions**

There are always exceptions. The Channel Islands are surrounded by Class D airspace extending across much of the Channel from the coast of France to the line of latitude 50° North. However, “Jersey Control”, based at Jersey Airport, will give a VFR or SVFR clearance to an aircraft flying under VFR provided it is radio and transponder equipped. This airspace, as a dependent territory, is operated by VATSIM UK.

The Manchester Low level Route is a corridor approximately from Whitegate NDB to a little north of the town of Warrington. It is 20 nautical miles long, north to south, and apart from wider sections at the northern and southern ends, is 4 nautical miles in width. It is clearly shown on the aviation 1:500,000 and 1:250,000 charts. It is part of the Manchester CTR (Class D) but VFR flights below 1300 ft may transit without a clearance from Manchester ATC under certain special conditions.

## **1.8 Uncontrolled Airspace**

In the UK all geographic areas “outside controlled airspace” are either Class F or Class G, and the pilot has more freedom of choice about where to go, who to talk to and when. It is also known as “the open Flight Information Region” (FIR). Pilots may fly VFR in the open FIR (learn your acronyms!) under the terms described in 1.3 above.

Class F “Advisory” or “Notified” routes are special areas of uncontrolled airspace where aircraft are permitted to fly VFR without being in contact with an ATS unit, but are required to navigate within certain constraints laterally and vertically. They are temporary and there are none in the UK at present (July 2023).

Class G In the UK, this effectively means “everywhere else”.

Transponder Mandatory Zones (TMZ). For reasons of additional safety, some areas of Class G airspace are defined where flight within them is only permitted when the aircraft is carrying a serviceable functioning transponder with Mode C enabled. These are areas beneath controlled airspaces that enable ATC to know the altitude of all aircraft and verify that they are underneath the base of the controlled airspace.

Radio Mandatory Zones (RMZ). Between Cornwall and the Scilly Isles an area of Class G below 4000 ft is defined as an RMZ. There are other areas west of Liverpool airport. Entry into these is allowed only if the pilot is in two-way radio

communication with ATC (although no clearance is required and no instructions are given).

## 1.9 Real World References

The CAA publishes a chart depicting airspace definitions. Every serious online pilot should have a copy and use it to augment the information contained in this manual. For a copy of the chart please go to the [UK AIP](#)

## 2. AIR TRAFFIC CONTROL PROCEDURES

### 2.1 General

On first reading, it may seem that radiotelephony (R/T) dialogue is hugely complex. However, it has a simple structure in two basic forms.

#### Pilot initiated

- a) A pilot contacts an Air Traffic Service Unit (ATSU) and requests a service.
- b) That service is provided either as a series of instructions or as information.

#### Controller initiated

- a) The ATSU contacts a pilot to provide information, request information or pass instructions.
  - b) The pilot responds with the information, or complies with the instructions.
- There are many different scenarios within that structure, as you would expect, but they all follow that general principle.

### 2.2 Air-ground R/T Dialogue

This manual contains samples of dialogue, with the Air Traffic Controller's instruction printed in red, and the pilot's response in blue. Text within square brackets is optional.

The usual flow of dialogue is in one of two forms.

- a **request** from the pilot, followed by a **permission** from ATC, or
- an **instruction** from ATC followed by an **acknowledgment** of compliance by the pilot.

The pilot NEVER tells ATC what to do, but may tell ATC what he is doing, in particular if he is unable to comply with an ATC instruction because of aircraft safety, or for air-legal reasons.

The rules state that the full call sign of the aircraft is used unless or until the ATCO abbreviates it, which would be after the initial call. He may abbreviate Golf Bravo November Oscar Zulu to Golf Oscar Zulu or just Oscar Zulu. In practice, after the initial call, pilots often abbreviate their call sign first. Where two aircraft have similar call signs, the Controller may request that each aircraft uses its full call sign in all transmissions.

The pilot reads most transmissions from ATC back in full. There are exceptions which are identified in the examples of correct R/T dialogue below.

### 2.3 Who's who? Controllers

Small aerodromes with a lot of GA traffic sometimes have an AGCS service or an AFIS (Aerodrome Flight Information Service). Although these are generally rare on

VATSIM due to low demand, Cix VFR Club has sometimes arranged such services to support online events. An AGCS will have a callsign like “Smallfield Radio”, and an AFIS will use a callsign like “Smallfield Information”.

A medium-sized or large aerodrome with significant IFR traffic will normally have ATC provided by Tower and Approach Controllers, and very occasionally Ground Controllers. Ground (with a callsign like “Bigtown Ground”) controls taxiing and vehicle movements, and Tower (with a callsign like “Bigtown Tower”) controls movements on the runway (landing and take off) and flight within the ATZ including VFR traffic in the circuit and aircraft on final approach and climb out. (At large airports, there may be an additional specialist Clearance/Delivery position which handles flight plan clearances, but this is usually amalgamated into Ground in VATSIM). In the real world, both these controllers are located the Control Tower with windows to let them see the whole airfield and ATZ, and use their eyes (visual surveillance) or a surface movement “radar” system at times of low visibility such as fog.

Approach controllers (who might use callsigns like “Bigtown Approach” or “Bigtown Director”) monitor and regulate aircraft approaching or departing from a CTR or ATZ. Control is transferred between Approach and Tower at a point agreed between them (for example a defined Visual Reference Point, or, for arrivals, often when the pilot reports that he has the airfield in sight).

In controlled en route airspace, ATC is handled by controllers using a surveillance system like radar, with callsigns like “Centre”, “Radar” and “Control”. En-route airspace is divided into “sectors” that are handled on different frequencies but have the same callsign; so there may be “LON\_S\_CTR” or “LON\_C\_CTR” that show up on VATSIM, but they will be both addressed as “London Control”.

Outside controlled airspace, flight information might be provided by a Flight Information Services unit (callsign like “London Information”, shown as LON\_I\_CTR on VATSIM), provided by an appropriate ATSU with surveillance coverage (usually Scottish Control or London Control, but also some approach units if on a “VFR local” flight), or a LARS (callsign like “Farnborough LARS”).

In the real world, all these types of service will be staffed, sometimes 24 hours a day. On VATSIM, controllers may provide service using the “top down” rule; a centre controller will provide not only en route ATC but also ATC services to aerodromes with a tower or approach facility. Note that for VATSIM UK, this includes aerodromes outside controlled airspace as well, although service may be downgraded when the controller is busy. Contact the controller to ask them what services they are providing *before* departure.

## **2.4 Who is in charge?**

The pilot is totally responsible for the aircraft’s safety at all times. For example, if ATC give a landing clearance, but there is an aircraft on the runway which doesn’t seem, to the pilot, to be moving, then he must consider the safety of his aircraft first and foremost, and if necessary, call “going around” and make a missed approach. ATC may have been confident that the aircraft ahead would clear in time, but if the pilot is unsure HE is in charge of his aircraft.

Under an Air Traffic Control Service, which is the majority of VATSIM positions of course, the real world rules are applied.

- An aircraft must NEVER take off without an express clearance to take off in the exact words “Cleared [for] take off”. A frequently used phrase “Line up and wait” is not a take off clearance.
- An aircraft must NEVER land without the express clearance to land in the exact words “Cleared [to] land”.

## 2.5 Chatter

Don't! ATC don't want to know your life history. “Good morning” and “Goodbye” and “Thank you” are acceptable, used sparingly. You can commence a dialogue with a controller with good morning, or good afternoon, etc., and end the session with “Goodbye”. If you must; “Thank you for the ATC” is acceptable, but it is a VATSIM only courtesy. You would never hear it in the real world. The only non-standard patten you should use is to inform ATC of a potential problem. “Gloster Approach, Golf Oscar Zulu, the Piper Cherokee ahead has not lowered his undercarriage”.

## 2.6 Talking to other Aircraft

The rule is – you don't, except in an emergency.

Sometimes (not usually under ATC, but at smaller fields), you might want to inform another aircraft who is about to land, that you are not about to enter the runway beneath him. In that situation, you do not call the other pilot, you simply make **your** intentions known by saying

Golf Oscar Zulu holding short runway two seven for landing aircraft.

If you do talk to another pilot, you only ever state **your** intentions. You don't try and tell him what to do — that's his responsibility.

On VATSIM, of course, there is the private message system. This is the way to talk to other pilots, other than by a separate Voice Over Internet Application such as TeamSpeak or Skype. To send a private message to an aircraft logged on as GABCD, type “.msg GABCD are you landing on runway 27 left?”. Note the dot before msg. There are a number of “Dot commands” in the Pilot Client software, which are listed in the relevant user manuals.

## 2.7 What to Say and How to Say It

There are few rules. In many cases you just have to learn the correct way to say things.

### 2.7.1 The Introduction

Every ATC dialogue starts with: -

<The called station>, <The calling station> and a request.

E.g.

Gloster Approach, Golf Bravo November Oscar Zulu request Basic Service

or, if approaching an airfield to land.

Gloster Approach, Golf Bravo November Oscar Zulu request join

The last of these two calls tells the controller that you are intending to land at his aerodrome.

An alternative call for approach and landing where the aircraft is known and flying into his "home" airfield, (not strictly correct, but acceptable)

Gloster Approach, Golf Bravo November Oscar Zulu inbound

Contrary to film folklore, you do not use the words "this is" in the middle as in "Gloster Approach, this is Golf Bravo November Oscar Zulu"

NEVER use Golf Bravo November Oscar Zulu calling Gloster Approach" – another line beloved of film directors, the most famous of which is probably "Flying Doctor calling Walambula Base".

Once communication is established, the form becomes

For information or instructions: - <Called station> Message

e.g. "Golf Oscar Zulu, turn right heading two seven zero degrees"

For acknowledgement: - Message <Calling station>

e.g. "Right two seven zero degrees, Golf Oscar Zulu"

### 2.7.2 Numbers

The deliberate pronunciations of words and numbers set out below originates in the days when radios were much less sophisticated than today, and reception much poorer. Consequently, today, these deliberately off-normal pronunciations are not used. As always, if in doubt, use them.

Official phonetic spelling of numbers is as follows:

zero wun too tree fower fife six seven eight niner; plus tousand (1,000) and daisimal rather than decimal. Examples are given below.

Runway too seven, not twenty seven

Runway zero fower, not four

Queue Enn Aitch one zero too fife (yes **fife**)

Heading wun niner zero (yes **Niner**)

Runway zero niner

One tousand fife hundred feet (NEVER "fifteen hundred")

Tree tousand feet (NEVER tree zero zero zero!)

"Surface wind too seven zero, wun four knots". The direction and speed of the wind are expressed as separate digits.

Radio frequencies are spoken "one two six daisimal three fife zero". With the introduction of 8.33KHz in the real world, many frequencies now have three digits after the decimal point, as in 126.355. However, not all FS programs model this change, and radio frequencies are now spoken by VATSIM controllers as if 8.33 KHz frequency spacing were simulated online.

The following examples may help clarify the method.

123.000 (wun too tree daisimal zero)

122.900 (wun too too daisimal niner)

119.725 (wun wun niner daisimal seven too fife)



123.650 (wun too tree daisimal six fife zero)

### 2.7.3 Acronyms and Abbreviations

The following are some of the short cuts used in ATC dialogue. Unfortunately the custom is not consistent, so some are spoken as phonetic alphabet letters, and some as English language letters - you just have to learn which is which.

PPL – Private Pilots Licence. Pronounced pee pee ell. All club members will have a virtual one of these. The term PPL is also in general use to describe a Private Pilot – e.g. “He’s a PPL with 300 hours on Tomahawks”.

IMC – Instrument Meteorological Conditions. Normally pronounced India Mike Charlie, but sometimes eye emm cee. These are weather conditions which are below the minima for VFR flight.

IR – Instrument Rating, pronounced India Romeo, probably, but it is almost never used in ATC dialogue. It is included here for completeness and also because VATSIM members are assumed to have an Instrument Rating.

VFR – Visual Flight Rules normally pronounced vee eff are on the radio.

IFR – Instrument Flight Rules normally pronounced eye eff are on the radio.

QNH – the altimeter barometric pressure setting which indicates the aircraft's height above sea level. It is used for take off and en route flight – pronounced Queue Enn Aitch. The QNH should include the word hectopascal, such as "Queue Enn Aitch niner niner tree hectopascal", if it has only 3 digits. See section 2.5.4 for an additional explanation of hectopascal.

QFE – the altimeter barometric pressure setting which indicates the aircraft's height above the aerodrome. It is used for landing – pronounced Queue Eff EE. Again; the word hectopascal is added after the numbers as above for QNH.

MATZ – “Mats” not Mike Alpha Tango Sierra

G-WHIZ – Golf Whisky Hotel India Zulu not Gee Whiz!! (There is an aircraft with that registration!). “Clever” registrations are always ignored in radio dialogue and phonetic pronunciation used.

ATZ – ay tee zed

CTR – abbreviated almost always to “Zone” e.g. “Request entry into the Liverpool zone at Vicars Cross”

TMA – Tee Emm ay.

POB (Persons on Board) – Pee Oh Bee

If using radio navigation aids (navaids) – quite acceptable for VFR navigation, then:-

NDB – Enn Dee Bee

VOR – Vee Oh Are

*But the identification letters of the navaid are spoken phonetically.*

*Gloucestershire NDB (GST) would be Golf Sierra Tango. E.g.*

*Gloster Approach, Golf Oscar Zulu. Estimate the Golf Sierra Tango in six minutes*

Roger – beloved of all those Top Gun films. It is a carry-over from an older phonetic alphabet “Able Baker Charlie” where R was Roger. With non-voice radio

communication (Morse!), transmitting “R” meant “I have received your last transmission.” Now it is spoken with the same meaning. It is never an answer to a question. (Also, “Roger That” is NEVER used in aviation R/T.)

Wilco – another chestnut, but from the Biggles era. It is probably used more commonly than “Roger”, and is a little more specific in its meaning. It means “I have understood your message and will comply with it.”

Affirm – means “Yes”

Affirmative – Not used in UK ATC terminology

Negative – means “No”

Negatory – Ugh! (CB Radio-speak – ten-one buddy!).

Over – at the end of a transmission. This is NEVER used in Aviation R/T.

Out – This may be used very occasionally if you are ending a transmission, but the Controller could be expecting more.

Gloster Tower, Golf Bravo November Oscar Zulu, request radio check wun too too daisimel niner

Golf Bravo November Oscar Zulu, Gloster, readability fife

Roger. Readability fife. Golf Oscar Zulu out

ATC was probably expecting you to request taxi, but all you wanted to do was test your radio. That's OK.

**Note** that ATC has abbreviated its callsign to just “Gloster” in this example. It is **inadvisable** for you to do the same because you have a choice of two Glosters, Tower and Approach, so omitting that word could lead to confusion.

**Note also** that Gloucestershire Airport, near the town of Gloucester, in the County of Gloucestershire, uses "Gloster" as its ATC call sign! (RT callsigns are always written phonetically).

#### 2.7.4 QNH and QFE

Originating back in the days of Morse code transmissions, the three-letter "Q codes" were a way of quickly transferring information. There were many of them devised for general radio use as well as for a number of specialist areas. A few have remained in aviation as it is much quicker to say "QNH" than it is to say "atmospheric pressure". QFE, QDM and QNE are a few others which have remained.

Barometric altimeters work by sensing changes in air pressure with altitude, but require calibration of the “zero” level. The pressure setting is entered in the Kollsman window of the instrument (or its electronic equivalent). Two pressure settings are referred to as QNH and QFE, and the difference between them is very important in aviation. First, the difference between **altitude** and **height** must be clearly understood. **Altitude** refers to the vertical difference between aircraft height and some datum pressure level, while **height** refers to the vertical distance between the aircraft and the ground at some point.

Setting the QNH in the altimeter window gives altitude above mean sea level, while setting QFE gives height above the aerodrome elevation. Thus, for an aircraft on the ground at an airfield, the altimeter will indicate the airfield elevation above sea level when the QNH is set, and zero when QFE is set.

Originally atmospheric pressure was measured in inches of mercury (inHg), because the first barometers used a column of mercury under vacuum to provide the necessary indication. Meteorologists later adopted millibars - where 1 Bar was equal to one Atmosphere; 14 pounds per square inch, and there are 1000 millibars in 1 Bar. The International Standard Atmospheric defines atmospheric pressure at sea level to be 1013.2 millibars.

On 17th November 2011, the millibar was replaced by the Standard International Unit "hectopascal" (hPa) in the aviation world. One hectopascal is numerically equivalent to one millibar. In addition, since 4th April 2013, for all radio transmissions, the word 'hectopascal' must be appended to figures when transmitting a pressure setting below 1000 hPa, or in cases where confusion or ambiguity may result.

QFE is rarely given by VATSIM controllers, as it does not display on their software, so they would have to know the aerodrome height above sea level and then make an adjusting calculation. One hectopascal is equivalent to approximately 30 feet, so the QFE at an aerodrome 300 feet above sea level would be 10 hectopascal less than the QNH at that aerodrome. QFE is normally available from ATC on VATSIM on request.

## 2.8 The Terrified Student

In his or her early student days, a pilot is invariably terrified of talking to ATC because so much information is passed in one transmission, which has to be noted down, remembered and then (the desperate bit) read back as precisely as a tape recording, without getting the numbers the wrong way round, and without hesitation or deviation.

However, the only way to defeat nerves is to talk to ATC as often as you can. It really does become second nature after quite a short time. After 40 hours flight training, the student is often better than the seasoned pilot who has become slipshod with time.

VATSIM publishes a VFR phraseology guide on their Downloads page - [here](#).

## 2.9 Readback

Contrary to popular belief, it is not advisable to repeat everything the controller says. Every message from a controller should be acknowledged with at least the pilot's callsign. This can be preceded by a simple acknowledgement ("Roger") or a confirmation of compliance with an instruction ("Wilco").

A route or clearance to enter or transit controlled airspace must be read back correctly and in full. The controller will confirm this by transmitting the word "correct". If all or any part of the clearance message is not readback correctly, the controller will repeat it until a full and correct readback is obtained.

Other instructions must also be read back, but any other parts of the message or informational messages should **not** be read back.

The full list of mandatory readbacks is as follows:-

- Taxi Instructions
- Level Instructions
- Heading Instructions

- Speed Instructions
- Airways or Route Clearances
- Approach Clearances
- Runway-in-Use
- Clearance to Enter, Land On, Take-Off On, Backtrack, Cross, or Hold Short of any Active Runway
- SSR Operating Instructions (“squawk” code, mode or ident)
- Altimeter Settings, including units when value is below 1000 hectopascals
- VDF Information (direction finding - QDM or QDR)
- Frequency Changes
- Type of ATS Service (“Basic”, “Traffic” or “Radar Control” service)
- Transition Levels (when descending from a Flight Level outside CAS)

Some examples:-

Golf Alpha Charlie Mike Romeo, Bristol Radar, Cleared to transit controlled airspace from Cheddar Reservoir VRP to M5 Avon Bridge VRP not above altitude 2000 ft, VFR, squawk 5051

Cleared to transit controlled airspace from Cheddar Reservoir VRP to M5 Avon Bridge VRP not above altitude 2000 ft, VFR, squawk 5051, Golf Alpha Charlie Mike Romeo

Read back in full. The full callsign should always be used to deliver and read back clearances.

Golf Mike Romeo, Traffic is a PA28 turning base, report in sight.

Wilco, Golf Mike Romeo.

No mandatory readbacks, the pilot just confirms compliance with the instruction.

Golf Mike Romeo, traffic is a Cessna 172 inbound from the north for overhead join last reported altitude 2500 ft. Further traffic is a Diamond Twin Star 5 miles north east joining right base runway 27.

Roger, Golf Mike Romeo.

No mandatory readbacks; an acknowledgement is all that is required for ATC purposes. However the pilot can transmit other messages that they decide may be useful to the controller or other traffic. (for example, “Twin Star in sight”)

Golf Mike Romeo, Basic Service, Cotswold 997 hectopascal, report Evesham,

Basic Service, 997 hectopascal, wilco, Golf Mike Romeo.

Read back the mandatory items and confirm compliance with the instruction

Golf Mike Romeo, after noise abatement, left turn on track, runway 27, wind 240 5 knots, cleared for take off.

After noise abatement, left turn on track, runway 27 cleared for take off, Golf Mike Romeo.

“left turn” is not a heading but it is a turn instruction and should be read back. VFR traffic are not normally given specific headings by ATC. The pilot should not read back the wind or say “copy the wind” - this phrase is explicitly ruled out in

CAP413.

## 2.10 Real World References

The Civil Aviation Authority publishes a “Radio Telephony Manual”, [CAP413](#) There is also a [Safety Sense leaflet](#) No: 22 with simple basic RT for GA pilots.

This manual forms the basis of dialogue between pilots and controllers on VATSIM and IVAO. It is strongly recommended that all VFR pilots have at least the Safety Sense leaflet.

## 3. VFR FLIGHT UNDER AIR TRAFFIC CONTROL

Full Air Traffic Control (ATC) is the norm on VATSIM. Occasionally a controller will log on at an AFIS or AGCS aerodrome. The procedures and dialogue for flight at an AFIS or AGCS aerodrome are described in sections 4 and 5.

ATC consists of a dialogue between pilot and controller in which the controller gives **instructions** to the pilot and the pilot carries out these instructions. For VFR flight, a Radar Control Service is only given inside controlled airspace (although you may receive an ATC service outside controlled airspace – be careful to note the difference). Outside controlled airspace, VFR flight may receive one of four UK Flight Information Services (UKFIS) – see Section 6.

**Note: The pilot remains responsible for complying with the Rules of the Air and for the safety of the aircraft at all times.**

This means that in some circumstances, if he is unable to legally or safely carry out an ATC instruction (e.g. if asked to climb, but this would take him/her into cloud) he must inform ATC that he is unable to comply.

### 3.1 Movement on the Ground

At an ATC controlled aerodrome, no aircraft (or vehicle) must move anywhere without express permission from ATC. In some cases, ATC even requires light aircraft pilots to obtain permission to start engine(s), a procedure which is mandatory for commercial aircraft.

### 3.2 Automatic Terminal Information Service (ATIS) - Departure

After start up and before taxiing, the pilot should obtain the Automatic Terminal Information Service (ATIS) broadcast where provided, and note the designation letter. A real world ATIS gives some or all of the following information: -

Airport, time, runway in use, runway surface condition (at three positions along the runway), Surface wind direction and speed, Cloud information, Visibility, QNH, QFE, Temperature, Dewpoint, and ends with “On first contact, report information <phonetic letter> received.”

For example:

Liverpool information Quebec. Time zero niner too zero zulu. Runway too seven in use. Wet, wet, wet, Surface Wind too fower zero degrees wun too knots. Scattered at too tousand, broken at tree tousand five hundred. Queue enn aitch wun zero wun too, queue eff ee wun zero zero niner Temperature plus too

dewpoint plus wun. On first contact, report information Quebec received.

*(Aside: If you ever wondered why a pop group should call itself "Wet Wet Wet", - well now you know!)*

For FS and VATSIM, the procedure is the same. The controller may have recorded a voice ATIS which can be heard by the pilot if he tunes the ATIS frequency as published in the chart for the aerodrome. One of the VATSIM Control client applications actually mimics the real world automatic robotic ATIS broadcast voice very well, working from an entered textual script. The text is displayed at the same time. Sometimes a controller is responsible for more than one aerodrome and there may not be a voice ATIS for the one from which the pilot is departing (the controller can run up to four). Each controller may also provide some information by text such as his area of responsibility, a reference web page etc. These do not normally change or have any identifying designator. When the radio is tuned to the controller's frequency, this "Controller Information" is displayed automatically.

### 3.3 Departure Clearances

At airports within a Class D Control Zone, all aircraft will be given a departure clearance whilst still on the ground. At large airports, this will normally be given before taxiing, but at the smaller regional airports and those local aerodromes with full ATC facilities, the clearance may be given during taxiing. There is no hard and fast rule. Each aerodrome has its own procedures, which VATSIM will mimic as far as possible. **A clearance cannot be given for any part of a flight outside controller airspace.**

A clearance will contain the following information: -

- After departure turn (left or right)
- Leave the zone at a standard exit point
- Any altitude restriction
- The flight rules pertaining to the departure
- A squawk code (where appropriate)

A typical example would be: -

Golf Bravo November Oscar Zulu, cleared with a left turn out to leave the zone at Vicars Cross, not above altitude wun thousand fife hundred feet QNH wun zero wun tree, standard VFR. Squawk fife zero fife zero.

And you have to read it back precisely as given (or as near as possible – note the slight difference in the reply below which is the result of familiarity rather than lack of it. It contains all the vital elements in the correct order, so is acceptable.

Cleared left turn out to Vicars Cross, not above altitude one thousand fife hundred feet, QNH 1013, standard VFR, Squawk fife zero fife zero. Golf Bravo November Oscar Zulu.

### 3.4 Taxi

The dialogue between pilot and controller is as follows. Note that the ATIS information letter can change at any time. The pilot may have listened to Bravo, but when the ATIS changes, the next sequential letter will be applied. The pilot may have missed this change if he has retuned his radio away from the ATIS frequency.

Gloster Tower: Golf Bravo November Oscar Zulu: Request radio check & taxi [instructions] with information Bravo.

Golf Bravo November Oscar Zulu: Readability five: [Information Charlie is current]. Taxi to holding point Echo One for runway 22. QNH 1012.

Taxi Holding point Echo one for runway 22 QNH 1012: Golf Oscar Zulu.

Engine run up and vital actions may be completed at the holding point, or at busy airports where the taxi distance is short just before starting to move off the apron.

### 3.5 Take Off

It is important that the pilot is FULLY ready to take off promptly before he makes his "Ready for Departure" call, as he will be then expected to start his take off roll immediately after receiving take off clearance. ATC may add the instruction to turn left or right depending on the filed flight plan. When the engine run up and vital actions checks are complete:

Golf Oscar Zulu: Ready for Departure

Golf Bravo November Oscar Zulu [With a right turn out] Runway 22. Surface wind two three zero degrees wun wun knots Cleared for take off.

[With a right turn out] Cleared for take off runway 22 Golf Oscar Zulu

**NOTES:** The pilot's call is NEVER "Ready for Take Off". There are very sound safety reasons for this (see CAP413) and on VATSIM it sounds most unprofessional.

ATC will always use an aircraft's full call sign for take off (and landing) clearances; again for reasons of safety.

ATC may want you to depart very quickly indeed if he has an aircraft on final approach and can slot you in before it lands.

Golf Oscar Zulu are you ready for an immediate departure?

Affirm, Golf Oscar Zulu

Golf Oscar Zulu runway 22. Surface wind two three zero degrees wun wun knots Cleared for immediate take off.

Cleared for immediate take off runway 22 Oscar Zulu

Note the distinction here between `departure` and `take off`. Take off is only used for the actual permission to take off. Note also that all the wind is always given by ATC, the pilot does not read back that part of the message.

### 3.6 Leaving The Circuit

Shortly after take off, usually less than 2 miles from the field, Tower will "hand over" the aircraft to Approach. If the airfield is busy, it may be as soon as the aircraft turns away from the runway extended centreline.

Golf Oscar Zulu Contact Gloster Approach on 128.550

Gloster Approach 128.550, Golf Oscar Zulu

If Tower is late calling, but is obviously not busy, then if the pilot thinks he has been forgotten, (it does happen), he may make a gentle prompt:

Gloster Tower Golf Oscar Zulu, 2 miles north, crossing the Severn

Golf Oscar Zulu Contact Gloster Approach on 128.550

Gloster Approach 128.550, Golf Oscar Zulu

The pilot changes frequency, and then calls Approach:

Gloster Approach Golf Bravo November Oscar Zulu

Golf Oscar Zulu Basic Service Cotswold 1012. Report passing Evesham

Basic Service [Cotswold] 1012, Wilco - Golf Oscar Zulu

The service being offered is stated and must be read back (see Section 6 for details on UKFIS) and the regional pressure setting is passed (in this case the "Cotswold" regional pressure setting).

The Approach controller will ask the pilot to report at a point which is at the limit of his jurisdiction. This may be a local reference point in the case of an ATZ or an official Visual Reference Point in the case of a CTR. Note that the "Wilco" in the response above refers to the instruction to report passing Evesham.

**or,**

while the aircraft is within a Control Zone, and the Regional pressure setting is not relevant;

Golf Oscar Zulu, Report leaving the zone at Tarpurley Roundabout.

Wilco, Golf Oscar Zulu

As the pilot approaches the required reporting point: -

Gloster Approach Golf Bravo November Oscar Zulu, passing Evesham, request change frequency to London Information, 124.750.

Golf Oscar Zulu, Frequency change approved.

**Or,** sometimes,

Gloster Approach Golf Bravo November Oscar Zulu leaving the zone to the north en route Welshpool.

ATC's reply, specific only to Online ATC services – not used in the real world in the UK (although it is in the USA).

Golf Oscar Zulu, no further ATC available, monitor Unicom on 122.80.



### 3.7 Standby and be Quiet

Occasionally, an ATCO will tell a pilot to standby, because he is busy with more important traffic. The Controller will simply say

Golf bravo yankee alpha victor standby

This means very simply - wait; say nothing, not even "standing by" or anything similar - simply nothing. The controller will come back to you when he can.

Very occasionally a controller will forget about you at a busy airport. After about 10 minutes, and when the channel has gone quiet, it is in order to say

Golf bravo yankee alpha victor holding at alpha

or something very similar. It will be enough to jog his memory.

### 3.8 Transponder Use

The transponder is a very useful identification transmitter included in the radio equipment of most aircraft, and its features have expanded with time. The most basic function is "Mode A", where the transponder transmits a four digit "squawk" code (octal digits, from 0-7) which either allows the specific aircraft to be identified or has a certain meaning.

Sometimes, ATC will allocate a unique code to an aircraft which will be associated by the ATC "back end" system with a particular flight and callsign. Then, when an aircraft is transmitting via its transponder, the callsign is displayed on all nearby ATC Radar scopes against that aircraft's "blip". If the transponder is using Mode C, altitude will also be transmitted and displayed.

In the real world, aircraft with a Mode A/C transponder that transmit a code not associated with a flight will *not* have their callsigns displayed on the controller's radar screen; only the Mode A code will be shown. VATSIM controllers can choose whether to operate realistically or to allow the software to show the callsign of all aircraft regardless of their transponder setting. In realistic mode, they don't know the callsign of a "blip" they haven't yet positively "identified" (e.g. by matching an assigned squawk code with the Mode A displayed and/or requesting the pilot to use the "squawk ident" feature). In the UK, controllers may assign an area-specific code to a VFR flight they are in contact with and providing a service to. A Liverpool Approach controller will ask the pilot to "Squawk 5050" for example. 5050 tells all other ATS units nearby (Manchester, Hawarden, Blackpool etc.) that that aircraft is being handled by Liverpool, because 5050 is "Liverpool's code" (as at July 2023).

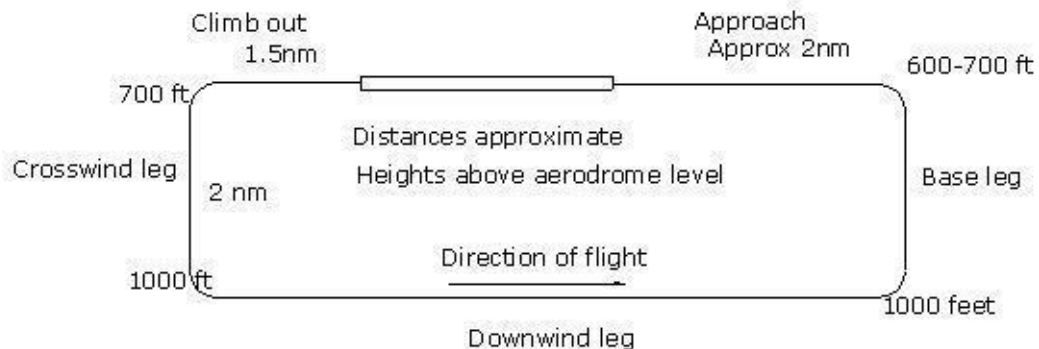
Apart from specifically allocated codes, the most commonly used code is 7000. This is the General "Conspicuity" code used in the UK and Europe for VFR flights (the IFR equivalent is 2000). A full list of Transponder Codes can be found on Wikipedia. Search for "Transponder (aviation)". Note that the internationally recognised hijack code, 7500, must NEVER be used on VATSIM, infringing this rule will result in the aircraft being disconnected.

**Note:** Unfortunately, 4-digit Mode A codes have limitations of uniqueness in a certain geographic area. To address this and other problems, a Mode S transponder transmits a unique 24-bit aircraft identifier code that is "burned in" to the unit on each specific aircraft, and some registries publish Mode S codes along with corresponding aircraft registration numbers and types, allowing specific aircraft to be identified. Mode S also has an optional data transmission function that can transmit position, height and speed. These transmissions can be received by

anyone with a suitable radio, and have been used by amateurs and professionals alike for “flight tracking”.

### 3.9 Dialogue in the Circuit

Believe it or not, trying to land an aircraft visually from a long straight in approach is quite difficult, due to lack of visual references. Also, how did you know it is the right field you are aiming for (in the days before tarmac runways)? The overhead join and circuit was devised to address these difficulties. The circuit itself is a long rectangular flight path with the runway forming the centre part of one leg.



#### The VFR Circuit

Circuits may be left hand (anti-clockwise) or right hand (clockwise). Left hand circuits are more usual, and preferred by the pilot, as he sits in the left-hand seat (well it was the American Wright Brothers that got us into this!). This gives him a better view of the airfield.

The “circuit height” is usually 1000 feet above the aerodrome level, though occasionally less – typically 800 feet, and rarely, more (Welshpool's circuit height is 1500 feet above aerodrome level because of adjacent high ground.) Circuits for helicopters are often lower (commonly 600 feet) and opposite in direction to that for fixed wing aircraft.

The standard circuit calls are straightforward. After take off, the aircraft turns crosswind, then downwind, and calls Tower

Golf Oscar Zulu downwind

Note that “Gloster Tower” is omitted, and the aircraft callsign comes first. This is because a dialogue is already established and the pilot's call is a report, not a request or an acknowledgement. There are no superfluous words at all. A common mistake is to call

Golf Oscar Zulu on the downwind leg **WRONG** - too many words.

ATC responds, and the pilot confirms by reading back the instruction: -

Golf Oscar Zulu report final number one

Report final number one, Golf Oscar Zulu

The next call is similarly succinct. On turning final and established in a stable descent, the pilot calls

Golf Oscar Zulu final [runway 22]

Adding the runway is not mandatory, but provides confirmation that the pilot is approaching the correct runway. Approaches to the wrong runway are not uncommon.

Golf Bravo November Oscar Zulu Runway 22, surface wind two two zero degrees one two knots, cleared to land.

Note that the aircraft's FULL callsign is always given with a landing clearance, which starts with the runway designator (number) and ends with the clearance. The pilot MUST read back "Cleared to land", otherwise ATC will repeat the instruction, or possibly tell the pilot to go around. Reading back the runway designator is optional, but the pilot does not read back the wind.

[Runway 22] Cleared to land, Golf Bravo November Oscar Zulu

### 3.10 Flying Circuits

If flying circuits with touch and goes, the dialogue will be slightly different.

Golf Hotel Echo downwind touch and go

Golf Hotel Echo report final number two to a Mooney on short final

Report final number two, traffic in sight, Golf Hotel Echo

On turning final and established in a stable descent, the pilot calls

Golf Hotel Echo final [touch and go] [runway 18] contact one ahead

Golf Hotel Echo runway 18, surface wind is one niner zero degrees zero eight knots cleared touch and go.

**Note:** Pilots should land their aircraft in the order given by ATC - avoid cutting in or going too far downwind (from the UK Rules of the Air Rule 13(3)).

### 3.11 Automatic Terminal Information Service (ATIS) - Inbound

At least 10 minutes (i.e. about 20nm) before the Estimated Time of Arrival (ETA) over the aerodrome, obtain the ATIS broadcast and note the designation letter.

**Note:** On VATSIM, when you tune a new frequency, depending on how the controller has set up his software, the "Controller Information" will usually be displayed in text on the FS or pilot client screen. It may contain all or some of the following.

Online until HH:MMz

Manchester Radar

Voice ATIS on 118.575

Submit feedback at [vats.im/atcfb](https://vats.im/atcfb)

### 3.12 Joining Procedure

So you have listened to the ATIS and noted down the runway in use, the QNH, the surface wind and the designated letter. The rest is important to note, but you don't need to refer to it again, so there's no need to write it down.

### 3.12.1 An Aerodrome with an ATZ only

Aerodromes in this category which have an Approach controller and published ATIS frequency real world (such as Gloucestershire Airport), should have one on VATSIM as well. So having obtained the ATIS, at no less than 5 minutes (i.e. about 10nm) before the Estimated Time of Arrival (ETA) over the aerodrome, call the Approach controller.

Gloster Approach Golf Bravo November Oscar Zulu request join  
Golf Bravo November Oscar Zulu Gloster Approach pass your message

Gloster Approach, Golf Bravo November Oscar Zulu Cessna 152 inbound from Welshpool: Overhead M50: Heading 140: 2500 feet QNH 1005: ETA Gloucester one fife: Information Golf, request overhead join

When giving an altitude, give the QNH you are using as well, in the form *one zero zero fife*. The ETA (Gloucester 15) means I will be arriving overhead your airfield at 15 minutes past the current hour, the hour normally not being spoken. Always use this form when referring to time. (Note M50 is said as “Emm Fifty”).

Golf Oscar Zulu report 2 miles north west of aerodrome

Report 2 miles north west Golf Oscar Zulu

Then, when almost at the 2 mile point

Gloster Approach Golf Oscar Zulu, 2 miles to run

Golf Oscar Zulu contact tower on 122.9

Tower 122.9 Golf Oscar Zulu

**Note:** It is rare for you to actually get as far as the aerodrome overhead before being asked to position for the circuit, whereas at small airfields without full ATC, the “Overhead Join” is the standard joining procedure. The Overhead Join procedure is fully described in the Cix VFR Club Training Manual, Exercise 22.

Once you are handed over to Tower, you change frequency quickly and simply call: -

Gloster Tower Golf Bravo November Oscar Zulu\*

Golf Bravo November Oscar Zulu, join right base for runway two two, you are number 1

Join right Base runway two two, number 1, Golf Oscar Zulu

\*There is no need to say any more. He knows where you are, because you have been handed over by Approach, and he can see you through the window of the Tower. **Note:** that because it is a first contact on this frequency, the pilot uses his full call sign.

The word “Contact”, as in *Contact Tower on 122.9* has a specific meaning, which is “the station I am telling you to call has your details, so there is no need to tell him all over again”.

### 3.12.2 An Aerodrome with a Control Zone (CTR)

Having obtained the ATIS as above, at no less than 5 minutes (i.e. about 10nm) before the Estimated Time of Arrival (ETA) at the Control Zone boundary, call the Approach controller.

Liverpool Approach Golf Bravo November Oscar Zulu request join  
Golf Bravo November Oscar Zulu Liverpool [Approach], pass your  
message

Liverpool Approach, Golf Bravo November Oscar Zulu Cessna 152  
inbound to Liverpool from Welshpool: Overhead Wrexham: Heading  
zero tree five: too thousand five hundred feet: QNH wun zero  
zero five: VFR: Estimate zone boundary one five: Information  
Golf, request entry into the zone at Vicars Cross

Golf Oscar Zulu Runway too seven in use. I am unable to clear  
you to enter the zone at Vicars Cross at this time. Do you  
wish to enter the zone at Tarporley Roundabout?

Affirm. Golf Oscar Zulu

All aircraft will be given an entry clearance after their initial call.

An entry clearance will contain the following information, similar to the departure clearance: -

- a) Enter the zone at a standard entry point
- b) Any altitude restriction
- c) The limit of the clearance
- d) A squawk code (where appropriate)

Golf Oscar Zulu cleared to enter the zone at Tarporley  
Roundabout, VFR, not above one thousand five hundred feet.  
Report at Tarporley Roundabout

And once again you have to read it back as precisely as possible as given.

Cleared [to] enter the zone at Tarporley Roundabout, VFR, not  
above one thousand five hundred feet. Report at Tarporley  
Roundabout. Golf Oscar Zulu

**Note:** A pilot may request a non-standard entry point, which may be granted if traffic is light. In the example above, the request to join at Vicars Cross (Not a standard entry point, but a standard *exit* point when runway 27 is in use) was refused! The pilot was redirected to a standard entry point without any fuss or drama. *Tarporley Roundabout is a well-known (and highly visible) Motor Racing Circuit, hence its use as a standard entry point.* Note also that the pilot was *offered* the alternative, not given it mandatorily, because he might wish to select a different standard entry point, and it is the pilot who has command of the aircraft.

If the pilot does not wish to enter at Tarporley Roundabout (there may be a huge thunderstorm sitting just overhead), he can request a different one.

Golf Oscar Zulu I am unable to clear you to enter the zone at Vicars Cross at this time. Do you wish to enter the zone at Tarporley Roundabout?

Negative. Request entry into the zone at Seaforth, Golf Oscar Zulu

**Note:** You use the word “Affirm” for Yes” and Negative” for “No”. You do NOT use “Affirmative” – that is American.

**Golden Rule:** You **MUST** not enter the zone under any circumstances without express clearance. If you cannot get your message in, because of busy R/T, you must remain outside controlled airspace and wait until you can get your message in. It is best to turn 180° and fly back the way you came for 5 minutes, then turn and try again.

Liverpool Approach Golf Oscar Zulu passing Tarporley Roundabout

Golf Oscar Zulu, your clearance is to Helsby. Report at Helsby Report Helsby Golf Oscar Zulu

(Give yourself time by calling a little early, rather than arriving and being told to orbit while waiting for other traffic to clear).

Liverpool Approach Golf Oscar Zulu approaching Helsby

In this case, Helsby has been given as the clearance limit. The pilot must not proceed into the circuit area without further permission. Before you reach your clearance limit, the ATCO may call you and, if you have the airfield in sight (the vital element here) he will hand you over to Tower. If you do not have the field in sight, as can happen in poor but legal visibility (5 kilometres is not very good visibility at all!), he may give you a heading to steer to bring you onto a section of the circuit.

Golf Oscar Zulu Do you have the field in sight?

Affirm, Golf Oscar Zulu

Golf Oscar Zulu, Contact tower on one two six daisimal tree fife zero

Tower one two six daisimal tree fife zero, Golf Oscar Zulu

Note the word “daisimal”. This is the correct official way to read out frequencies, You may hear it omitted on readback but this is not correct.

Once you are handed over to Tower, change frequency quickly and simply call: -

Liverpool Tower Golf Bravo November Oscar Zulu\*

Golf Bravo November Oscar Zulu, join left base for runway 27, you are No. 2 to a Cherokee on a three mile final

Join left base runway 27, No. 2, Golf Oscar Zulu

\*As in the previous example, this is sufficient to let Tower know that you are now on his frequency.

### 3.13 The Approach and Landing

The procedure for the final approach and landing is the same whether the aerodrome has a CTR surrounding it or just an ATZ. Report your position. Note the brevity. An approach to land is no time for expounding your aircraft's life history.

Golf Oscar Zulu, left base

Golf Oscar Zulu Runway 27, surface wind two seven zero one four knots, cleared to land.\*\*

Cleared [to] land runway 27, Golf Oscar Zulu\*\*

**or** if you are behind another aircraft

Golf Oscar Zulu You are No. 2 to a Bandeirante. Report that traffic in sight

Traffic ahead in sight. Golf Oscar Zulu

Because two aircraft are not allowed to occupy the runway at the same time without a specific ATC instruction, (only ever given if the landing runway is long enough for two aircraft to pose no safety risk), ATC will not give you landing clearance until the aircraft ahead has landed and vacated the runway.

Golf Oscar Zulu with that traffic in sight continue approach

Continue approach Golf Oscar Zulu

Once the aircraft ahead has landed and vacated the runway: -

Golf Bravo November Oscar Zulu Runway 27, surface wind two seven zero one four knots, cleared to land.\*\*

Cleared to land runway 27. Golf Oscar Zulu\*\*

\*\*You do not read back the surface wind, but you do read back the runway number and your position in the queue.

Sometimes, if the runway is long enough, ATC may tell you to "land after" the landing aircraft ahead, confident that the first aircraft will not pose any danger to the second, and may have vacated the runway by the time the second aircraft touches down. This may happen if two light aircraft are landing one behind the other. Such "land after" messages will never be given if a heavy aircraft is following a light aircraft, because of the long landing roll that the heavy requires, or if a light aircraft is following a heavy (the latter because of wake turbulence caused by the heavy aircraft, which can flip a light aircraft over on its back).

When given taxi instructions to "exit at Foxtrot", you normally report back [passing Foxtrot](#), or [runway vacated](#).

### 3.14 Special VFR

A Special VFR clearance may be given **in a Control Zone** to a pilot who is unable to comply with IFR flight (because he is not qualified to do so, or the aircraft is not equipped with the necessary instruments).

SVFR clearances are given to VFR pilots when the in-flight visibility is less than VFR minima for that class of airspace.

When operating on a Special VFR clearance the pilot must

- Obtain an ATC clearance and comply with ATC instructions.
- Fly within the limitations of the pilot's licence (\* see below).
- Remain clear of cloud, with the surface in sight and clear of obstructions.
- Comply with the low-flying regulations except the height restrictions of Rule 5 of the Rules of the Air\*\*.
- Fly at sufficient height to be able to land clear of the area and without danger to people or property if an engine fails.
- NOT fly closer than 500 ft to any person, vessel, vehicle or structure, unless landing or taking off.
- Avoid aerodrome traffic zones unless prior permission has been obtained from ATC.

\* For a PPL the privileges of the licence require that under an SVFR, the in-flight visibility must be 10km or more, and this overrides the airspace condition. For a PPL with IMC or IR, the in-flight visibility must be 3km or more.

\*\* Rule 5 of the Rules of the Air states that an aircraft may not fly within 1500 feet vertically of any congested area, and fly at sufficient height to be able to land clear of the area and without danger to people or property if an engine fails. The 1500 feet rule is waived for SVFR flight, but NOT the "land clear" provision.

Note: All VATSIM pilots are assumed to have an Instrument Rating, so a pilot could file an IFR flight plan and thus not require an SVFR clearance. However, if, as most Cix VFR Club pilots do, he has filed a VFR flight plan, then the above SVFR rules will apply.

#### **4. AERODROMES WITH AN AFIS STATION**

Full Air Traffic Control (ATC) is the norm on VATSIM. Only occasionally will a controller log on at an aerodrome with an Aerodrome Flight Information Service (AFIS).

At an AFIS station, the controller is designated the Aerodrome Flight Information Service Officer (AFISO). While an aircraft is on the ground, the AFISO gives **instructions** to the pilot and the pilot carries out these instructions. When preceding beyond the holding point ready for take off, the controller is only allowed to provide **information**. The pilot takes off at his own discretion.

Similarly, when approaching the aerodrome to land, the pilot makes his approach at his own discretion, having regard to **information** passed to him by the AFISO. Once the aircraft vacates the runway, the AFISO issues taxi and parking **instructions**, with which the pilot must comply.

**Note: The pilot remains responsible for complying with the Rules of the Air and for the safety of the aircraft at all times.**

##### **4.1 Movement on the Ground**

As stated above, at an Aerodrome Flight Information Service (AFIS) station, all aircraft movement on the ground is subject to AFIS instructions.

##### **4.2 Automatic Terminal Information Service (ATIS)**

Aerodromes with an AFIS do not normally have ATIS broadcast capability.



### 4.3 Departure Clearances

Aerodromes with an AFIS service cannot give departure clearances, because, as described above, once the aircraft is airborne, the pilot is in total control of its movement.

### 4.4 Taxi

The dialogue between pilot and controller is as follows.

Wellesbourne Information, G-BPHE at South Warwickshire Flying School, request radio check, airfield information and taxi instructions

G-BPHE Wellesbourne Information readability 5, taxi to holding point Alpha for runway 18, right hand circuit, QNH 992 hectopascal

Taxi to holding point Alpha for runway 18 QNH 992 hectopascal, G-BPHE

Engine run up and vital actions will normally be completed at the holding point.

### 4.5 Take Off

It is important that the pilot is FULLY ready to take off promptly before he makes his "Ready for Departure" call, as he will be then expected to start his take off roll immediately in order to keep traffic moving and avoid conflicts with landing traffic.

G-BPHE ready for departure

G-BPHE take-off at your discretion, surface wind one niner zero degrees zero eight knots

G-BPHE Taking Off

Do not read back 'at my discretion' or the wind information.

Again note the distinction between departure and take off. Take off is only used for the actual action of taking off.

There may be departing traffic ahead of him, or landing traffic reported by the AFISO.

G-BPHE Holding position for departing traffic

G-BPHE traffic is a Cessna 172 on a 2 mile final, take-off at your discretion. Surface wind one niner zero degrees zero eight knots

Holding position G-BPHE

Because the pilot is responsible for taking off at his discretion, he has decided to wait for the landing traffic. Remember that landing traffic has precedence over departing traffic.

### 4.6 Leaving The Circuit

In general, an AFISO is not interested in you once you have departed, it is a requirement of the Rules of the Air though to report leaving the ATZ.

Golf Bravo Papa Hotel Echo departing to the North and changing frequency to Unicom 122.80

Golf Hotel Echo Roger.

Note that unlike ATC, the AFISO does not require you to report at an outbound reference point.

#### 4.7 Dialogue in The Circuit

This is very similar to the calls made under an ATC service. You report downwind and final. However, the AFISO will not give you permission to land, but will provide the airfield information for landing. Remember not to use more words than are required.

Golf Hotel Echo downwind

Golf Hotel Echo report final traffic is a Mooney on short final

Report final, traffic in sight, Golf Hotel Echo

On turning final and established in a stable descent, the pilot calls

Golf Hotel Echo final [runway 18] contact one ahead

Adding the runway is not mandatory, but provides confirmation that the pilot is approaching the correct runway. Approaches to the wrong runway are not uncommon. **Contact one ahead** refers to the aircraft (the Mooney) which is ahead of you.

Golf Hotel Echo runway 18 land at your discretion, Surface wind one niner zero degrees zero eight knots

The pilot's response is only to transmit his intentions.

Golf Hotel Echo landing

**Or**, if flying circuits:

Golf Hotel Echo touch and go

**Or**, if the previous traffic has not vacated the runway: -

Golf Hotel Echo traffic ahead - going around

#### 4.8 Joining Procedure

At no less than 5 minutes (i.e. about 10nm) before the Estimated Time of Arrival (ETA) over the aerodrome, call the AFISO. As in the departure sequence, the arriving pilot does not request a service, but only reports his intentions.

Wellesbourne Information, Golf Bravo Papa Hotel Echo inbound

Golf Bravo Papa Hotel Echo Wellesbourne Information pass your message.

**or**, (better)

Wellesbourne Information, Golf Bravo Papa Hotel Echo. PA28 inbound from Welshpool six miles south west descending to 1000 feet for landing.

Golf Hotel Echo runway 18 QFE 998 hectopascal. One aircraft in the circuit.

Runway 18, QFE 998 Golf Hotel Echo

The pilot then joins the circuit in one of the standard ways, having regard to his position relative to the landing runway, and to other traffic. An overhead join is preferred if the circuit is busy, so that all other aircraft in the circuit can be identified and you can slot in to an appropriate position. It also allows you to join safely from any direction. Join downwind if there is no traffic on crosswind leg and you are heading inbound within about 45° of the circuit downwind direction. Join on base leg if you are appropriately positioned and there is no traffic on downwind.

One of the skills of piloting is to establish where other traffic is located from listening to the R/T exchanges. This is equally true on VATSIM as in the real world. Try and get a mental picture of where other aircraft are and keep that picture in mind as you join the circuit.

Golf Hotel Echo, joining downwind

Roger, Hotel Echo. One aircraft on final

Golf Hotel Echo, final

Golf Hotel Echo, land at your discretion, surface wind one niner zero degrees zero eight knots

#### 4.9 The Approach and Landing

Again the pilot gives his intentions in as few words as possible.

Golf Hotel Echo, final

Golf Hotel Echo, land at your discretion, surface wind one niner zero degrees zero eight knots

Golf Hotel Echo, landing

#### 4.10 Taxiing to Parking

At an AFIS controlled aerodrome, the AFISO is in charge of ground movements, remember. So immediately after landing, you will be under his control, and he will issue taxi instructions.

Golf Hotel Echo, vacate first right onto the taxiway, and taxi to parking in front of the tower, stand 5

Stand 5 Wilco, Golf Hotel Echo

### 5. AERODROMES WITH AN AIR/GROUND COMMUNICATION SERVICE

Full Air Traffic Control (ATC) is the norm on VATSIM. Only occasionally will a controller log on at an aerodrome with an Air/Ground Communication Service (AGCS).

At an AGCS station, the operator is only authorised to give airfield and traffic **information**, both on the ground and airborne. The pilot manoeuvres his aircraft on the ground and in the air at his own discretion. The AGCS operator may not use the instruction “at your discretion” and can only use the phraseology “traffic information...”.

**Note: The pilot remains responsible for complying with the Rules of the Air and for the safety of the aircraft at all times.**

### **5.1 Automatic Terminal Information Service (ATIS)**

Aerodromes with an AGCS do not have an ATIS broadcast in the real world.

### **5.2 Departure Clearances**

Aerodromes with an AGCS cannot give departure clearances.

### **5.3 Taxi**

The dialogue between pilot and AGCS operator is as follows.

Nottingham Radio, Golf Bravo Yankee Alpha Victor Request Radio  
Check and taxi information for VFR flight to Cambridge

Golf Alpha Victor, Nottingham Radio, readability 5, runway 03  
in use, left hand circuit, QNH 1022

Note that no taxi instructions are given

Readability 5 also, taxiing to runway 03 left hand, QNH 1022  
Golf Alpha Victor

Engine run up and vital actions will normally be completed at the holding point.

### **5.4 Take Off**

Golf Bravo Yankee Alpha Victor ready for departure

Golf Alpha Victor no known traffic to effect, surface wind one  
niner zero degrees zero eight knots

Golf Alpha Victor Taking Off

There may be departing traffic ahead of him, or landing traffic, so a request for  
traffic information may be made.

G-BYAV request traffic information

G-BYAV traffic is a Cessna 172 reported 2 mile final. Surface  
wind one niner zero degrees zero eight knots

Holding position G-BYAV

Because the pilot is solely responsible for taking off safely, he has decided to wait  
for the landing traffic. Remember that landing traffic has precedence over  
departing traffic.

### **5.5 Leaving The Circuit**

In general, an AGCS operator is not interested in you once you have departed, it is  
courtesy to "sign out" from the VATSIM service, though. There is no real-world  
Unicom service in the UK.

Nottingham Radio Golf Bravo Yankee Alpha Victor departing to  
the south and changing frequency to Unicom 122.80

Golf Alpha Victor Roger.

Note that unlike ATC, the AGCS Operator does not require you to report at an outbound reference point.

## 5.6 Dialogue in The Circuit

This is very similar to the calls made under an ATC service. You report downwind and final. However, the AGCS Operator will not give you permission to land, but will provide the airfield information for landing. Remember not to use more words than are required.

Golf Hotel Echo downwind

Golf Hotel Echo PA28 reported short final

Traffic in sight, Golf Hotel Echo

On turning final and established in a stable descent, the pilot calls

Golf Hotel Echo final [runway 03] contact one ahead

Adding the runway is not mandatory, but provides confirmation that the pilot is approaching the correct runway. Approaches to the wrong runway are not uncommon. The phrase **Contact one ahead** refers to the aircraft (the PA28) which is ahead of you.

Golf Hotel Echo no traffic to affect. Surface wind one niner zero degrees zero eight knots

The pilot's response is only to transmit his intentions.

Golf Hotel Echo landing

**Or**, if the previous traffic has not vacated the runway: -

Golf Hotel Echo traffic ahead - going around

Or, if flying circuits with touch and goes: -

Golf Hotel Echo touch and go

## 5.7 Joining Procedure

At no less than 5 minutes (i.e. about 10nm) before the Estimated Time of Arrival (ETA) over the aerodrome, call the AGCS operator. As in the departure sequence, the arriving pilot does not **request** a service, but only reports his **intentions**.

Nottingham Radio, Golf Bravo Papa Hotel Echo inbound

Golf Bravo Papa Hotel Echo Nottingham Radio pass your message

Nottingham Radio, Golf Bravo Papa Hotel Echo. PA28 inbound from Welshpool six miles south west descending to 1000 feet for landing

Golf Hotel Echo runway 27 QFE 998 hectopascal. One aircraft in the circuit, report joining

Runway 27, QFE 998 Golf Hotel Echo

The pilot then joins the circuit in one of the standard ways, having regard to his position relative to the landing runway, and to other traffic. An overhead join is preferred if the circuit is busy, so that all other aircraft in the circuit can be

identified and you can slot into an appropriate position. It also allows you to join safely from any direction. Join downwind if there is no traffic on crosswind leg and you are heading inbound within about 45° of the circuit downwind direction. Join on base leg if you are appropriately positioned and there is no traffic on downwind.

One of the skills of piloting is to establish where other traffic is located from listening to the R/T exchanges. This is equally true on VATSIM as in the real world. Try and get a mental picture of where other aircraft are and keep that picture in mind as you join the circuit.

Nottingham radio, Golf Hotel Echo, joining downwind

Golf Hotel Echo, Roger. One aircraft on final

## 5.8 The Approach and Landing

Again the pilot gives his intentions in as few words as possible.

Nottingham radio, Golf Hotel Echo, final

Golf Hotel Echo, surface wind one niner zero degrees zero eight knots

Golf Hotel Echo, landing

## 5.9 Taxiing

At an AGCS aerodrome, the Operator can only provide information such as a suitable place to park. He cannot give any instructions at all.

## 6. ENROUTE FLIGHT INFORMATION SERVICES

On 12<sup>th</sup> March 2009, the system of Air Traffic Services Outside Controlled Airspace (ATSO-CAS) changed completely. Now known collectively as UK Flight Information Services (UKFIS). If you search on the Internet for UKFIS, you will find many comprehensive references, so it is only necessary here to describe the procedures adopted by VATSIM.

There are two types of en route radio service applicable to VFR pilots, and two others which do not affect VFR traffic, but are mentioned briefly. Despite the change of name, these services can still only be offered **outside** CAS.

### 6.1 Basic Service

Under a Basic Service the pilot tells the ATC unit his position and intentions (route, destination etc.) and the ATC unit responds with limited information, usually just the QNH. A Basic Service is the commonest type of service requested and offered for VFR flights. The controller may issue a squawk code (which must be read back of course) but this does not imply that any radar derived information will be given.

## 6.2 Traffic Service

This is a level higher than a Basic Service, but is only available from those ATC units which have radar (they don't all have). Here the ATC unit will monitor your position on radar and provide information on possible conflicting traffic within 5 miles radius of you and 1000 - 3000 feet vertically (if the ATCO has height information,). The aircraft will need to be identified on the controller's radar screen, usually by a discrete squawk code. VFR pilots can request a Traffic Service but it carries additional obligations. The pilot must inform ATC of any changes of route, heading or level. The pilot remains responsible for terrain clearance.

## 6.3 Deconfliction Service

A Deconfliction Service is a radar-based service where the controller provides specific radar-derived traffic information and issues headings and/or levels aimed at achieving planned deconfliction minima, or for positioning and/or sequencing. However, the avoidance of other traffic remains ultimately the pilot's responsibility. Traffic must be able to accept routing or level instructions for flight in IMC. But, regardless of meteorological conditions, this service is only provided to IFR flights above terrain-safe levels.

## 6.4 Procedural Service

With a Procedural Service, the controller provides restrictions, instructions, and approach clearances which, if complied with, achieve deconfliction minima against other aircraft participating in the Procedural Service. There is no radar or visual surveillance available for traffic using a Procedural Service, therefore neither traffic information nor deconfliction advice can be passed with respect to unknown traffic. This service is available to IFR flights only. You will very rarely come across a Procedural Service being offered and used on VATSIM except at airfields which do not have radar but do have instrument approach procedures (such as Shoreham)

## 6.5 Who do I Talk to En Route?

In general, any airfield which may be affected by your flight, plus the following, if available. However, these services are rarely available on VATSIM.

### 6.5.1 London Information

London (or Scottish) Information provides a Basic Service to allow pilots to know who is around them, without tying up the time of a busy airport controller. In the real world, the Information services do not have Radar and simply act as a clearing house for messages. They will provide the Regional QNH outside controlled airspace, and information on any other known traffic within about 10 miles radius. The Information Services cannot provide a radar service. Although all VATSIM ATC client software mimics radar, a controller manning London Information (or Scottish) has to pretend that he doesn't have radar, if he is to offer the service realistically. Consequently he will request position reports at intervals, even though he can see where you are.

### 6.5.2 Lower Airspace Radar Service

LARS is a service operated mainly by military aerodromes plus some of the regional airports, e.g. Luton. A LARS unit has radar (of course) and can provide all of the available en route services.

On VATSIM, a LARS service, from a military controller, is rarely available. However, a LARS can be provided by Approach or Radar Controllers within a 40 nautical mile radius of their station. Tower and Ground controllers cannot provide a radar service. Approach or Radar controllers have the letters APP in their call sign; e.g. Thames\_APP or EGNR\_APP. Look for such callsigns in the pilot client ATC Directory, or on VATSpy or Servinfo. Servinfo is of some vintage now, but is still excellent for its purpose of identifying which controllers and pilots are online. Servinfo is available for download from the Club website, if it cannot be located elsewhere.

### 6.5.3 Regional Airports

If you are passing near the controlled airspace of regional airports, and a VATSIM controller is online, it is a good idea to get a Basic Service from them. They normally welcome this type of contact, especially if they are not busy.

### 6.5.4 Local Aerodromes

If you plan to overfly an aerodrome which has an ATZ, not a CTR, then provided you are above 2000 feet above the aerodrome level, you don't need to call them. However, if a controller is online at a small airfield you wish to overfly, then it is good airmanship to call them and tell them your intentions. Again, this type of contact is normally welcomed.

### 6.5.5 Military Aerodrome Traffic Zones

The controlled airspace around military airfields is unique because it is always a defined shape as described below. Civil aircraft have the right, strangely, to fly through a MATZ without requiring permission, although pilots almost always treat a MATZ as a no-go area without permission.

- The main airspace is a zone 5 nautical miles in radius from the surface to 3,000 feet above aerodrome level (AAL), centred on the midpoint of the longest runway.
- One or two stubs may also exist which extend beyond the main airspace in alignment with the longest runway.
- Each stub is 5 nautical miles long, 4 nautical miles wide, and extends from 1000 feet to 3000 feet AAL.

MATZ penetration, as it is termed, is always flown with the aircraft altimeter set at the aerodrome QFE, so that the pilot transits the MATZ at a given height above the aerodrome - usually 2000ft. If there is a VATSIM controller covering a military airfield, then the ATC dialogue is as follows.

Shawbury Zone G-ABCD request MATZ penetration.

G-ABCD Shawbury zone pass your message.

Shawbury zone G-ABCD en route Barton to Sleaf 10 miles north of Shawbury, request MATZ penetration



G-ABCD MATZ penetration approved. Transit at height 2000 feet  
QFE 1002

MATZ penetration approved. Transit at 2000 feet on Shawbury  
QFE 1002, G-ABCD

Normally Military radar units track the aircraft and do not require position reports.  
They tell the pilot when he is clear of the MATZ

G-ABCD you are now clear of the MATZ. Barnsley 1009

Clear of the MATZ. Barnsley 1009 G-ABCD.

## 6.6 Position Reports

When operating under VFR, pilots should make initial contact with an enroute or approach controller with a very brief call.

London Information, Golf Alpha Bravo Charlie Delta, request  
Basic Service.

Golf Alpha Bravo Charlie Delta, London Information, pass your  
message

The phrase “Pass your message” invites the pilot to pass a position report in a standard format. The acronym CARPAR can be used to remember it. Always try to transmit the information in the expected order:-

C call sign

A aircraft type

R route (from point of departure to point of intended first landing)

P present position

A altitude

R request

For Example: -

Birmingham Radar Golf Papa Mike Romeo Juliet Basic Service

Golf Papa Mike Romeo Juliet Birmingham Radar pass your message

Birmingham Radar Golf Papa Mike Romeo Juliet Cessna 172  
routing Coventry to Tatenhill. East abeam Tamworth, 2400 feet,  
request Basic Service

Golf Romeo Juliet Birmingham Radar, Basic Service Barnsley  
1012, report leaving the frequency

Basic Service Barnsley 1012, Wilco, Golf Romeo Juliet

Some particular points are worth noting about this exchange:

a) The phrase “East abeam” (or north, south, west) is used if a prominent waypoint or landmark is up to about 3 miles away from the aircraft. There is no hard and fast distance rule, but common sense tells you that if you are 5 miles east of Tamworth, you would instead report [approaching Measham VFRP](#) (check your charts or Plan-G to see for yourself).

- b) The use of [Wilco](#). The term Wilco (I will comply) can be used instead of “report leaving the frequency”. Wilco can be used to acknowledge an instruction only when that instruction is not a clearance to land, or take off, or an instruction to fly on a specific heading or at a specific altitude or flight level.
- c) The controller has abbreviated the aircraft callsign, so the pilot does the same.
- d) The pilot must read back the altimeter setting information (the Barnsley regional pressure setting)

## 6.7 VATSIM Procedures

In VATSIM, many airports and aerodromes do not have any ATIS cover at the time you choose to fly. On any evening, when most Flight Simulator pilots fly, there may be perhaps half a dozen manned stations, mostly the major airports. Using programs such as VATSPY or SERVINFO (free download from one of the many VATSIM download sites, or via links from the Cix VFR Club website), you can find out who these are. With the exception of Heathrow, the Club will try and plan trips which maximise our exposure to manned stations.

If there is no ATIS at a specific airport, it is worth trying the local Approach controller. In VATSIM, a system known as the “Top Down” principle is used, where controllers with a higher qualification can offer a service at those locations where a lesser qualified service is all that is required. For example, Thames Radar can give a Tower service for London City and Biggin Hill. We have the advantage of cyber-mobility like that

## 6.8 Real World References

The CAA publishes a comprehensive guide to Enroute Flight Information Services within the UK, “UK Flight Information Services” reference [CAP774](#). Every serious online pilot should have a copy and use it to augment the information contained in this manual.

## 7. EMERGENCIES

For full details of all real world emergency procedures, see CAP 413 Chapter 8. There are two levels of emergency which may concern VATSIM pilots.

- **Distress** A condition of being threatened by serious and/or imminent danger and of requiring immediate assistance.
  - **Urgency** A condition concerning the safety of an aircraft or other vehicle, or of some person on board or within sight, but does not require immediate assistance.
- Normally, emergencies do not happen with Flight Simulator, unless created artificially through the failures system. Occasionally they do occur, as happened to a Pilot on VATSIM during an on-line flight with an ATIS service. The pilot was flying a twin, when due to a quirk in the software, the right hand throttle refused to move, effectively simulating a loss of power on one engine. The pilot declared an emergency, cut short the circuit and landed safely, although he wasn't easily able to turn left once on the ground!

In an emergency, it is even more important to

AVIATE : NAVIGATE : COMMUNICATE

### 7.1 MAYDAY MAYDAY

The standard MAYDAY call is as follows: -

Mayday, Mayday, Mayday. Gatwick Director Golf Bravo November Oscar Zulu: Cessna 152: Engine failure: Intend immediate forced landing 5 miles south east of Handcross: Passing 1500 feet heading 350: Student pilot: One POB

On VATSIM, there is no emergency frequency, so you would make your MAYDAY call on the frequency you are working at the time. However, a few pilots think it is "cool" to declare emergencies, and although they find it a lot of fun, it isn't always welcome, because an emergency then gets priority over all other traffic. Very occasionally someone will declare an emergency just to get priority, which is not at all good airmanship. Because of this, only declare an emergency if it is genuine; e.g. short of fuel, engine failure as described above. You may have to depart from standard phraseology to convince the controller that you have a genuine aviation related problem. Controllers can refuse MAYDAY calls at their discretion.

As an aside, it is actually good fun doing engine-out landings on Flight Simulator, and very good training. Switch your engine off mid-downwind in the circuit and try and land on the runway. However, please do so off line unless the controller gives you permission beforehand. Contact the controller on frequency and request practice forced landing.

## 7.2 PAN PAN PAN

The standard Pan call is as follows: -

PAN PAN. PAN PAN. PAN PAN. Birmingham Radar Golf Bravo Charlie Delta Echo: Cessna 172: en route Coventry to Tatenhill. Unsure of position. Last known overhead Nuneaton at time 35 2000ft heading 330

The controller should respond: -

Golf Bravo Charlie Delta Echo, squawk 0401

Squawk 0401 Golf Delta Echo

Golf Delta Echo identified near Kingsbury. Tatenhill Aerodrome is bearing 353 degrees, range 15 miles from your present position.

Controllers can refuse PAN calls at their discretion.

Practice Pan calls are permitted, as in the real world. The call then is **Practice Pan, Practice Pan Practice Pan**. However, on VATSIM where there are no true in flight emergencies and the consequences of getting lost are annoying rather than potentially dangerous, there isn't really a lot of difference between the two. Apart from the inclusion of the word "Practice", the dialogue is identical.

## 7.3 Loss of Communication with a VATSIM Controller

This situation is certainly the most common problem that online pilots face which could be termed an emergency. Voice communication may be lost both ways i.e. from the pilot and the controller, or, more usually, one way, where one party has technical problems with their computer or software. The simple solution is to revert to text transmissions if possible. It is quite permissible for one party to use text and the other voice, if only one is having voice communication problems.

However, if neither voice nor text communication is possible, and the pilot is in an area of high aircraft activity, he may be forced to disconnect from VATSIM, in accordance with VATSIM rules.

## 8. ABBREVIATIONS USED IN AVIATION

This is a comprehensive, if not complete list. These abbreviations appear on real world aviation charts and aerodrome plans, in Flight Guides etc., and most of them are commonly used.

AAL	Above Aerodrome Level
ABn	Aerodrome Beacon
ACC	Area Control Centre
A/C	Aircraft
A/D	Aerodrome
AFIS	Aerodrome Flight Information Service
AGL	Above Ground Level
AGCS	Air/Ground communication station
AIAA	Area of Intense Aerial Activity
AIC	Aeronautical Information Circular
AIP	Aeronautical Information Publication
Ap	Approach (Lighting)
APAPI	Abbreviated Precision Approach Path Indicators
APP	Approach Control
ATC	Air Traffic Control
ATIS	Automatic Terminal Information Service
ATSU	Air Traffic Service Unit
AVGAS	Aviation Gasoline
AVTUR	Aviation Turbine Fuel
Awy	Airway
BAA	British Airports Authority
CAA	Civil Aviation Authority
CAS	Controlled Airspace
c/s	Call-sign
CTA	Control Area
Ctl	Control
CTR	Control Zone
DME	Distance Measuring Equipment
E	East

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EET	Estimated Elapsed Time
Elev.	Elevation
ETA	Estimated Time of Arrival
ETD	Estimated Time of Departure
FAT	Final Approach Track
FBU	Flight Briefing Unit
FIC	Flight Information Centre
FIR	Flight Information Region
FIS	Flight Information Service
FL	Flight Level
Freq.	Frequency
ft.	Feet
GA	General Aviation
GCA	Ground Controlled Approach System
GMC	Ground Movement Control
GMP	Ground Movement Planning
GMT	Greenwich Mean Time (UTC)
Gn	Green
H+	minutes past the hour
H24	Continuous operation
HF	High frequency
HJ	Sunrise to Sunset
Hmr.	Homer
HN	Sunset to Sunrise
HO	Hours of operational requirement
Hold	Holding Point
HP	Holding Point
hPa	Hectopascal
hr/s	Hour/s
IAP	Instrument Approach Procedure
IAS	Indicated Air Speed
IBn	Identification Beacon
ICAO	International Civil Aviation Organisation
IFR	Instrument Flight Rules
ILS	Instrument Landing System
IMC	Instrument Meteorological Conditions

Info.	Information
kHz	Kilohertz
kt	knots
lbs	Pounds (weight)
Lctr.	Locator Beacon (NDB)
LDA	Landing Distance Available
LFA	Local Flying Area
LITAS	Low Intensity Two Colour Approach Slope System
LLZ	Localizer
m	metres
M or Mag	Magnetic
MATZ	Military Aerodrome Traffic Zone
MDH	Minimum Descent Height
MEDA	Military Emergency Diversion Aerodrome
Met	Meteorological Office
METAR	Aviation Routine Weather Report (in aeronautical meteorological code)
MHz	Megahertz
Mil.	Military
MKR.	Marker Beacon
MM	Middle Marker
MTWA	Maximum Total Weight Authorised
MAUW	Maximum All Up Weight
(N)	Night
N	North
NATS	National Air Traffic Services
NDB	Non-directional Radio Beacon
NAVAIDS	Radio Navigation Aids
NM, nm	Nautical Miles
NOTAM	Notice to Airmen. A notice containing information concerning the establishment, condition or change in any aeronautical facility, service, procedure or hazard, the timely knowledge of which is essential to personnel concerned with flight operations
OCH	Obstacle Clearance Height
Op hrs	Operation Hours
OPMET	Operational Meteorological (Information)

OM	Outer Marker
O/R	On Request
O/T	Other Times
P	Primary Frequency
PAPI	Precision Approach Path Indicators
POB	Persons on Board
PPL	Private Pilot's License
PAR	Precision Approach Radar
PN	Prior Notice
PNR	Prior Notice Required
PPR	Prior Permission Required
QFE	Altimeter sub-scale setting to obtain elevation above aerodrome level
QFU	Runway orientation (in degrees Magnetic)
QNH	Altimeter sub-scale setting to obtain elevation above sea level
R	Red or Radial
RAD	Radar
RCL	Runway Centre Line
REIL	Runway End Identifier Lights
R/T or RTF	Radio Telephone
RVR	Runway Visual Range
Rwy	Runway
S	South
S	Secondary Frequency
SAL	Supplementary Approach Lighting
Sctr.	Sector
SAR	Search and Rescue
SFC	Surface
SR	Sunrise
SRA	Surveillance Radar Approach
SS	Sunset
SSR	Secondary Surveillance Radar
SVFR	Special Visual Flight Rules
TACAN	Tactical Air Navigation Aid (UHF)
TAF	Aerodrome Weather Forecast

Tel	Telephone
Thr/Thld.	Threshold
TMA	Terminal Manoeuvring Area
TORA	Take-off Run Available
TVOR	Terminal VOR
TWR	Tower
UFN	Until Further Notice
UTC	Co-ordinated Universal Time
VAD	Visual Approach and Departure
VASIS	Visual Approach Slope Indicator System
VDF	VHF Direction Finding
VFR	Visual Flight Rules
VHF	Very High Frequency
VMC	Visual Meteorological Conditions
VOLMET	Meteorological Information for aircraft in flight
VOR	VHF Omnidirectional Radio Range
VORTAC	Very High Frequency Omni Range and Tactical Air Navigation
VRP	Visual Reference Point
W-	West
Wh	White