

Controlling VFR on VATSIM

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To help controllers learn about VFR on VATSIM, we have prepared this brief explanation of how to control VFR aircraft. All of these instructions are for use only on VATSIM -- there are some situations in the real world that are different than this.

General Rules for Controlling VFR

The key things a controller working VFR flights must remember are as follows:

1. You (the air traffic controller) do NOT provide vectors (headings and altitudes) except in rare situations; instead, the pilot is responsible for navigation and terrain avoidance.
2. On a time-permitting basis, you can help prevent mid-air collisions by pointing out traffic, but in the end it is the pilot's job to spot other traffic and prevent a mid-air collision.
3. Because of #1 and #2, the pilot must be able to see clearly several miles away at all times. Therefore, Visual Meteorological Conditions (VMC) must prevail where the pilot is flying VFR. Without getting into the complexities of "exceptions," the VFR rules say that an airport must have a ceiling of 1000 feet or more, and a visibility of 3 miles or more. If the weather is worse than that, the airport is "IFR" and you advise pilots that they will need to fly IFR.
4. Any VFR aircraft not in the vicinity of an airport (typically more than 5 miles away) is usually NOT required to talk to ATC at all! (There are some exceptions - see below).
5. VFR aircraft normally squawk 1200, except for certain circumstances (see below)

Flight Following

A VFR pilot can ask for VFR Traffic Advisories, also known as VFR Flight Following, either when they are about to depart an airport (in any Class of airspace) or in the air. Pilots do this because they want a radar controller to help them spot other airplanes, and to have someone monitoring them on the radio in case of emergency.

In this case, you treat the aircraft just like any other VFR aircraft, except they get a discrete squawk code (not in the 1200 range), and you need to confirm that the altitude you see on the radar screen matches the altitude they are flying ("N340LC, say altitude?")

While they are under radar contact, give traffic alerts as needed, and assist in navigation if they request help.

After they leave your airspace, you hand them off to the next controller (such as APP or CTR, or even TWR). If there is no controller to hand off to, advise the pilot, "Radar services terminated, Squawk VFR, and switch to advisory (UNICOM)."

Flight Plans and Route Clearances

Technically, a VFR pilot does not need to file a flight plan at all. If an aircraft calls you and says he's ready to depart VFR and you don't see a flight plan for them, you don't need to ask the pilot to file one. (If, however, he is departing from a Class B or Class C airport, then either you should create a flight plan or you should ask the pilot to file one.)

VFR flights are not given route clearances at all. In other words, they do not have to file waypoints or fixes IF they file a plan at all. That being said, it's not a bad idea to file your route even when flying VFR. In the real world you would want someone to know where to look for you if you didn't return home that day.

Class D Airport (Tower and Ground Controllers)

This section describes VFR procedures for controllers at an airport that is Class D (in other words, not part of Class B or Class C airspace).

Departures

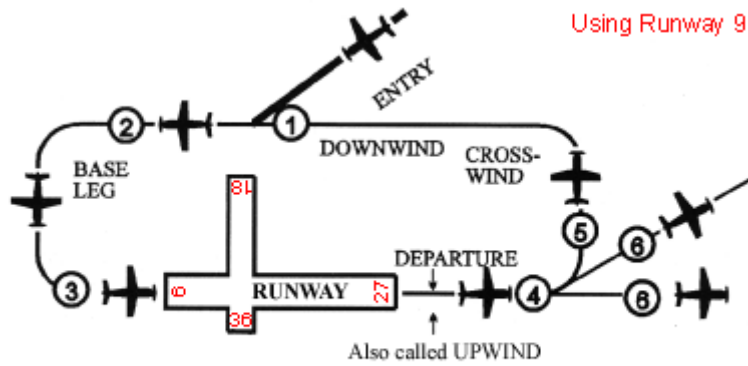
As mentioned above, a VFR flight won't get a route clearance, so the first controller the pilot will call is Ground (if available) or Tower, and will declare that they are ready to taxi. If they don't mention it, ask which direction they are going (this may affect which runway you send them to). Advise the pilot of the wind, altimeter, and runway in use, and then give them taxi instructions. Then tell them to contact the Tower when ready for takeoff.

The pilot will call the Tower and say they are ready for takeoff. If they don't mention it, ask which direction they are departing. The VRC arrivals and departures window is very handy when dealing with many clearances. I recommend using the built-in reminder feature. Just "aircraft select" a plane, and then hit "aircraft select" again to put that plane on a timer. VRC will beep at you every few seconds until you "aircraft select" it again, turning it off.

When the runway is clear, you will give them four pieces of information:

1. The departure "procedure" (see below);
2. The current wind;
3. The runway they are using (and the intersection if they're not at the end); and
4. Cleared for takeoff.

The departure procedure requires explanation, because it is different than an IFR Departure Procedure. First we need to remind you of the traffic pattern. See the following graphic.



If the runway uses the "standard traffic pattern," all turns are made to the left, as shown in this diagram. (Some runways use a "right hand" traffic pattern, where everything is the same but all turns are made to the right.)

Let's assume you're using Runway 9. The following table shows what departure procedure to use depending on which direction the pilot is going:

Runway 9 In Use

Outbound Flight Direction	Departure Procedure Phraseology
Eastbound	"Make straight-out departure ..."
Northbound	"Make left crosswind departure ..."
Westbound	"Make left downwind departure ..."
Southbound	"Fly straight-out until x miles from the airport ..." (you decide how many miles is safe)
Staying in the pattern	"Make left closed traffic ..."

Closed Traffic

Aircraft in the pattern at a busy airport can create problems if you're not careful. A pilot flying the pattern can generally make his legs as long or as short as he wants. If you have other aircraft on approach, or maybe someone else in the pattern, you could potentially end up with a conflict. Therefore, the following is recommended:

1. Give aircraft specific instructions about when to contact you such as, "Call on midfield downwind," or, "Call on 3 mile final."
2. If you've got aircraft on approach that could cause a problem, take control of the pattern aircraft. Have the pilot extend the downwind leg, or tell them, "I will call your base." This way, they won't just turn into oncoming traffic.
3. Use traffic advisories often. You can also have one aircraft follow another in the pattern. This can save you a lot of work giving each individual plane directions.
4. Finally, don't be afraid to limit the amount of traffic in the pattern or to close the pattern altogether. Reserve this option for when you really can't handle any more traffic. However, if you can, allow the pilots to have fun and fly.

Arrivals

Arriving aircraft will contact the Tower when they are 5 to 10 miles from the airport, and they should give you their position and intentions (such as, "11 miles northwest, inbound for landing," or "over Elliot Bay, inbound for touch and go's").

Again, you won't be able to tell who is who, because all aircraft squawking 1200 are just identified with a box on the VRC screen, along with their Mode C altitude.

Based on their position, you should give instructions on how enter the traffic pattern and when to call again. Something like "Enter left traffic for Runway 9, report midfield downwind," or "Make straight-in to Runway 9, report 2-mile final." See the following chart that goes along with our example above using Runway 9:

Runway 9 In Use

Inbound Flight Direction	Departure Procedure Phraseology
From the East	"Enter left downwind traffic, report midfield on the downwind."
From the North	"Make mid-field 45-degree entry, report on the 45."
From the West	"Make straight-in to Runway 9, report on a two mile final."
From the South	"Cross the airport midfield at xxxx feet or above" (at least 500 above traffic pattern) "and then make a 45-degree entry, report on the 45."

Again, you don't tell the pilot what heading to fly, or exactly what altitude. You just tell them how to get into the pattern.

Your job is to plan sufficient spacing between each plane to make safe landings. If necessary, help a pilot spot another plane to follow: "*Traffic is 10 o'clock and 2 miles, a Cessna, follow that traffic on downwind.*" That way, it is the pilot's job to maintain good separation.

Once a plane is on the downwind leg (or on about a two-mile final), clear them to land. If another plane (or two) will be landing first, say, "You are number two [or three] for landing." You don't tell them when to turn base, unless you need to put more separation between them and the preceding aircraft (in which case, say "I'll call your base turn for traffic.")

Transitions

Aircraft approaching a Class D airport but not intending to land there (just to fly over) will contact the TWR. They should be given a minimum altitude to maintain (usually 500 feet above traffic pattern, "Maintain at or above 2000 feet") to keep them away from arriving and departing aircraft. When time permits, you can give transiting pilots traffic alerts to help them avoid other planes.

Class B and C Airports (Tower and Ground Controllers)

Departures

Aircraft departing from an airport in Class B (like KSEA), or Class C (like KPDX and KGEG), must get a departure clearance. This is slightly different than a full IFR route clearance.

If a Clearance Delivery (DEL) position is staffed, the pilot should call DEL for their departure clearance. Otherwise, GND or TWR will handle this. First thing, find out if the pilot will be requesting flight following after leaving the Class B. You'll note that a VFR departure clearance has these elements:

1. Cleared to operate in the Class Bravo (or Charlie) airspace;
2. After departure, fly heading XX and maintain XXXX feet or below until clear of the Class B airspace (to get the plane out of the way of other aircraft and out of the Class B or C airspace as soon as possible);
3. **Departure frequency XXX.XX
4. Squawk 15XX. (Standard squawk code given at that airport)

**NOTE: You should have already determined if the pilot will want flight following once clear of the Class B. If so, issue the frequency of the controller that will be providing radar services to the pilot. If not, you can omit this from the clearance.

Notice what is missing compared to the usual IFR clearance? No "cleared to" the destination, no specific altitudes to fly.

Normally you DON'T want the pilot to fly one of the standard VFR departure patterns when leaving a Class B or C airport, because you want to get that plane away from the (usually faster) IFR traffic coming in and out. That's why you give specific heading and limiting altitude.

The aircraft contacts GND for taxi and then TWR for takeoff. After clearing the aircraft for takeoff, the TWR should remind the pilot to "Maintain VFR at all times" -- in other words, if a heading or altitude takes a plane toward a cloud, the pilot MUST tell the TWR so the TWR can approve deviations.

Finally, when the plane leaves the Class B or Class C airspace, the TWR controller says, "Radar services terminated, Squawk VFR, frequency change approved, good day."

Arrivals

Aircraft landing at an airport within Class B or Class C airspace are required to contact the appropriate ATC before entering the airspace. Usually, if the plane is small and coming in under the airspace, they will contact TWR first. (See below for Approach Controller instructions.)

The TWR controller assigns a VFR squawk code (anything in the 1200 range EXCEPT 1200) and advises the pilot how to approach the airport (usually similar to Class D arrivals, such as "left downwind"). The only difference is that usually you usually don't want them on a long final approach to the runway, since you'll probably have high-speed IFR aircraft coming down that approach path. A close-in base turn is almost always preferable.

Transitions

Aircraft approaching an airport in Class B or C but not intending to land there (just to fly over) and flying at a low level (below the airspace until within about 5 miles of the airport) will contact the TWR. These should be treated just like arriving aircraft, with a squawk code, advice on how to transit the airport (such as "Cross the airport at the approach end of Runway 16") and an altitude to maintain.

Class B and C Airspace (Approach Controllers)

Aircraft arriving or transiting Class B or Class C airspace and first calling APP should be given four pieces of information:

1. "Cleared to operate in the Class Bravo (or Charlie) airspace";
2. "Fly heading XX and maintain XXXX feet;" (whatever gets them through your airspace, or to the airport, as safe as possible)
3. "Squawk 15XX" (Standard squawk code)
4. "Maintain VFR at all times" (they cannot go into clouds)

When the plane squawks the right code, confirm their altitude matches what you see on the radar screen.

You should advise them of any traffic conflicts you see developing, and suggest vectors if necessary to avoid traffic or if they have a hard time navigating.

Aircraft arriving at a Towered airport within the airspace should be handed off as usual. If the plane is transiting, then when it leaves the Class B or Class C airspace, the controller says, "Radar services terminated, Squawk VFR, frequency change approved, good day," unless the pilot has requested Flight Following (see above).