

# VFR

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# Visual Meteorological Conditions

**Visual meteorological conditions (VMC)** are required in order to be able to fly under visual flight rules (VFR). If at least one of the minimum values is not met, VFR flights are no longer permitted or must land immediately. In this case, SVFR can be used in control zones under certain circumstances.

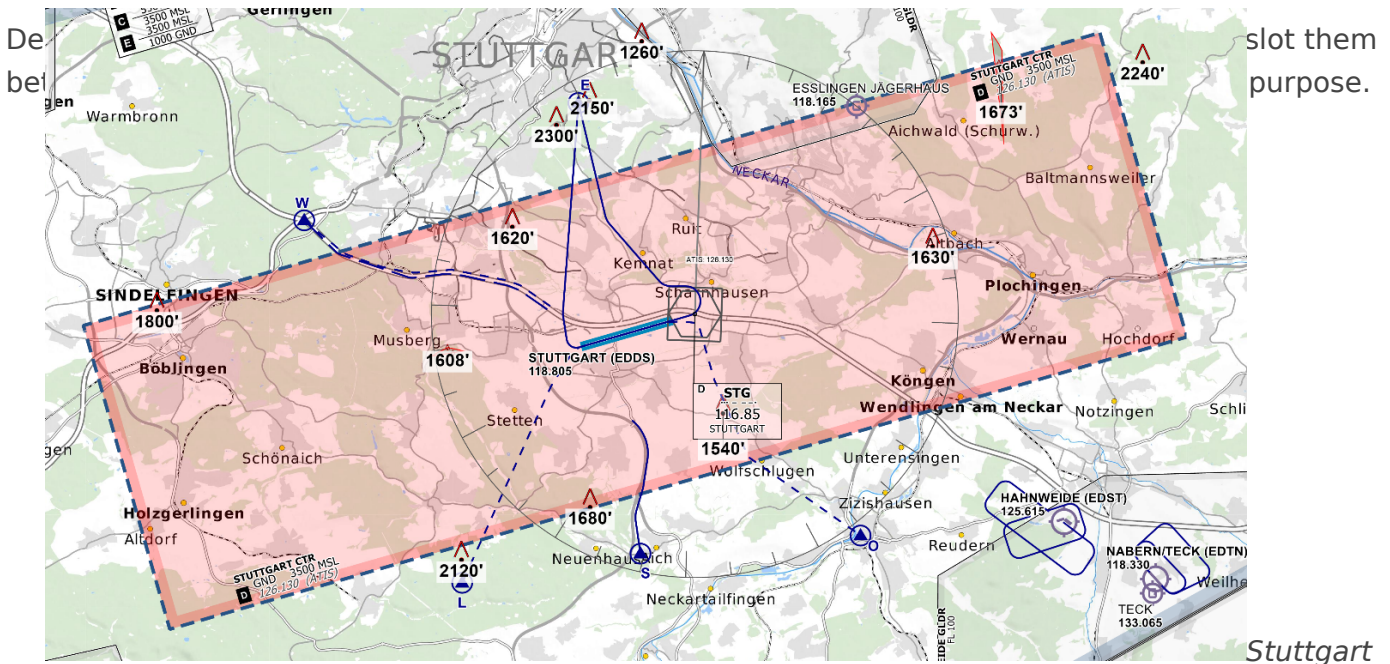
Level	Airspace	Minimum Flight visibility	Minimum distance to clouds
FL100 +	all	8 km	horizontally 1.5 km & vertically 1000ft
FL100 - 3000ft (1000ft AGL)	all	5 km	
3000ft (1000ft AGL) - GND	A B C D E	5 km	
	G	5 km & Erdsicht	clear of clouds
in <u>control zones</u> additionally 5 km ground visibility and ceiling at or above 1.500ft			

# VFR Basics + Entry / Exit / Crossing

**Visual flight rules (VFR) traffic** navigates primarily by sight, using roads, rivers and landmarks as a guide. There are specific visual flight charts for this purpose, which pilots and controllers at an airport must be familiar with. Among other things, these charts show the mandatory reporting points used to enter and leave the control zone (see illustration). Furthermore, certain routes and holding patterns may be specified, which a pilot must adhere to.

VFR approaches are not separated in relation to other traffic and are responsible for maintaining the necessary distance autonomously. To make this possible, traffic information and, if necessary, wake turbulence warnings must be used. VFR departures require wake turbulence separation.

Radio communication during VFR can take place in both German and English. Detailed radio communication procedures for VFR traffic can be found in the AIP under GEN 3.4 Fernmeldedienst if required.

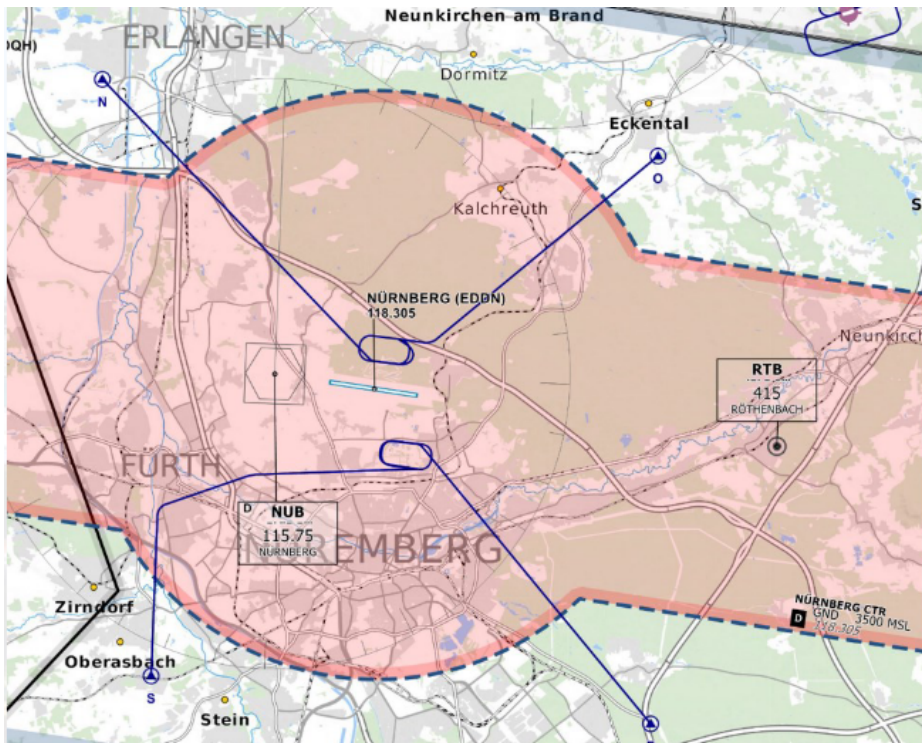


Control Zone (D-CTR) with compulsory reporting points - © openflightmaps.org

# VFR entry & exit

For the purpose of flying in and out of the control zone, there are published **entry and exit routes** that lead from the airfield out of the control zone or from outside the control zone into a **holding pattern** that is close to the aerodrome traffic circuit.

Let's take a look at the Nuremberg airfield as an example:



You can see that Nuremberg has four published entry and exit routes for VFR. All four routes are approved for both outbound and inbound flights. There are other airfields where some routes are only approved for approach or only for departure.

At the beginning of the routes outside the control zone you will see a filled blue triangle. This symbol indicates a compulsory reporting point. This means that every pilot must report any overflight of this point with their flight altitude. If the triangle were not filled in, it would be an optional reporting point. The pilot would not report overflying this point independently, but you can ask him to. Next to the blue triangles you will see the names of the mandatory reporting points (S, E, N, O), which are also the names of the routes.

If you assign an **entry** via N, the pilot must fly over N, report the overflight with their altitude and then enter the CTR along the blue route. If the pilot approaches the airfield and receives no further instructions, they must enter the published holding procedure. The clearance to enter the control zone is therefore not a clearance to enter the aerodrome traffic circuit.

For an **exit** from the control zone, the whole process is somewhat simpler: If you give the instruction to leave via a route, the pilot flies to the blue route after take-off and reports their current altitude when flying over the mandatory reporting point. It is also possible to release departing traffic on the aerodrome traffic circuit after take-off and then, for example, release it on the exit route from the downwind of the circuit. As soon as they have reported the outside

mandatory reporting point, you can allow the pilot to leave the frequency.

**Caution: For exits, right turns must be approved by the controller.** For example, if you want to let a VFR pilot leave the control zone via O in operating direction 28, it makes sense to allow them to make a right turn with the voice group "right turn approved", as otherwise they will have to fly a very long left turn over the airfield to get to the assigned departure route.

We have now learned almost everything we need to know for a VFR entry/exit. In the following two radio examples, we will take a look at how this might work.

You should know beforehand that every VFR aircraft must be informed of the **runway direction** and the current **QNH** before performing any movement within our control zone.

Einflug / Arrival	
German	English
Sylt Turm, Moin DEMAM.	Sylt Tower, Moin DEMAM.
DEMAM, Moin Sylt Turm.	DEMAM, Moin Sylt Tower.
DEMAM, Cessna 172, VFR von Helgoland, 10 Minuten südlich von Sierra 1, 1800 Fuß zur Landung.	DEMAM, Cessna 172, VFR from Helgoland, 10 minutes south of Sierra 1, 1800 feet, for landing.
DEMAM, fliegen Sie in die Kontrollzone über die Sierra Route, aktive Piste 32, QNH 1025.	DEMAM, enter CTR via Sierra Route, active runway 32, QNH 1025.
Fliege in die Kontrollzone über die Sierra Route, aktive Piste 32, QNH 1025, DEMAM.	Entering CTR via Sierra Route, active runway 32, QNH 1025, DEMAM.
DEMAM, Sierra 1, 1800 Fuß.	DEMAM, Sierra 1, 1800 feet.
DEMAM, verstanden.	DEMAM, roger.
DEMAM, Sierra 2, 1800 Fuß.	DEMAM Sierra 2, 1800 feet.
<b>Anmerkung:</b> <i>Where a pilot will fly next depends on their intentions and the wider traffic situation. If there is little traffic, a pilot might make a direct approach. If there is more traffic and delaying measures are necessary, having a pilot on the downwind can be more advantageous.</i>	
DEMAM, verstanden, fliegen Sie in den Gegenanflug Piste 32.	DEMAM, roger, join downwind runway 32.
Fliege in den Gegenanflug Piste 32, DEMAM.	Joining downwind runway 32, DEMAM.

DEMAM, Wind 340 Grad 11 Knoten, Piste 32, Landung frei.	DEMAM, wind 340 Degrees 11 knots, runway 32, cleared to land.
Piste 32, Landung frei, DEMAM.	Runway 32, cleared to land, DEMAM.

Ausflug / Depature	
German	English
Sylt Turm, Moin, DEMAM.	Sylt Tower, Moin, DEMAM.
DEMAM, Moin , Sylt Turm.	DEMAM, Moin , Sylt Tower.
DEMAM, C172, Apron 2, zwei Personen an Bord, Information Hotel, VFR über Echo erbitte Rollen.	DEMAM, C172, Apron 2, two persons, information Hotel, VFR via Echo request taxi.
DAM rollen Sie zum Rollhalt Piste 14 über I D, QNH 1019.	DAM taxi to holding point runway 14 via I D, QNH 1019.
Rolle zum Rollhalt Piste 14 über I D, QNH 1019, DAM.	Taxi to holding point runway 14 via I D, QNH 1019, DAM.
DAM Rollhalt Piste 14, abflugbereit.	DAM holding point runway 14, ready for depature.
DAM verlassen Sie die Kontrollzone über die Echo Route, Wind 180 Grad 2 Knoten Piste 14, Start frei.	DAM leave CTR via Echo Route, Wind 180 degrees 2 knots runway 14, cleared for take off.
Verlasse die Kontrollzone über die Echo Route, Piste 14 Start frei, DAM.	Leave CTR via Echo Route, rwy 14, cleared for take off, DAM.
Echo 2, 2000 Fuß, DAM.	Echo 2, 2000 feet, DAM.
DAM, verstanden.	DAM, roger.
Echo 1, 2000 Fuß, DAM.	Echo 1, 2000 feet, DAM.
DAM, verstanden, verlassen der Frequenz genehmigt, schönen Flug.	DAM, roger, approved to leave frequency, have a nice flight.
Verlassen der Frequenz genehmigt, vielen Dank.	Approved to leave frequency, thank you DAM.

## VFR crossing

This is the simplest and shortest chapter concerning VFR: flying through the control zone. Sometimes there are pilots who, for various reasons, simply want to fly through our control zone without performing any maneuver on the runway.

You initially handle these pilots identically to an entry. As soon as they approach the airfield, you give them clearance to leave via a published route and/or release them directly to a mandatory reporting point on the departure route. From this point onwards, this pilot counts as an outbound flight and is controlled accordingly.

## Runway movements

In addition to normal take-offs and landings, there are often VFR pilots who only want to fly traffic circuits within the control zone for training purposes. Of course, in this case it does not make sense for pilots to vacate the runway after landing and then taxi straight back to the taxi stop for the next take-off.

We will now introduce you to the most common runway movements performed in conjunction with aerodrome circuits:

- Touch and Go (German: Aufsetzen und Durchstarten)  
The pilot lands on the runway, then immediately applies full power and takes off again. The flight is treated as an approach until touchdown and then as a take-off again
- Low Approach (German: Tiefanflug)  
If pilots only want to practice approaches and not landings, they often make a low approach. They never touch the runway, but fly about 50 feet above it. The flight is treated as an approach until it crosses the runway threshold and then as a departure.

Note: For both of these flight procedures, it is important to tell the pilot what to do afterwards (e.g. enter the (right) circuit, fly over xy, ...) at the latest (ideally before) when you give the clearance for the touch and go or low approach. The same applies to a go-around. If you instruct a go-around, you must tell the VFR pilot what to do afterwards. You should not give IFR pilots any additional instructions for a go-around, as they will then fly the missed approach procedure published in the charts.

## Need of traffic information

The principle of VFR in airspace class D (CTR) may be somewhat contradictory at first. You don't have to separate the visual aircraft, but they still count as controlled flights because they need clearance for movements within the control zone.

The key to why this still works is **traffic information**. Without this information, a VFR pilot would not be able to assess the situation around him in such a way that he remains clear of other traffic. **Traffic information for VFR is often regarded as a nice-to-have service, even by controllers, but this is simply wrong.**

In airspace class D, as a controller you are **obliged** to inform VFR about VFR and IFR and IFR about VFR traffic.

So as soon as you let a VFR pilot enter the control zone or let them depart, you must be able to ensure that you can inform them about traffic at all times and also inform the surrounding IFR traffic about the VFR pilot. If you are unable to do this due to workload or other reasons, you may not accept VFR traffic in your control zone and/or may have to instruct VFR traffic in the air to leave the control zone or to land.

Examples where traffic information is mandatory:

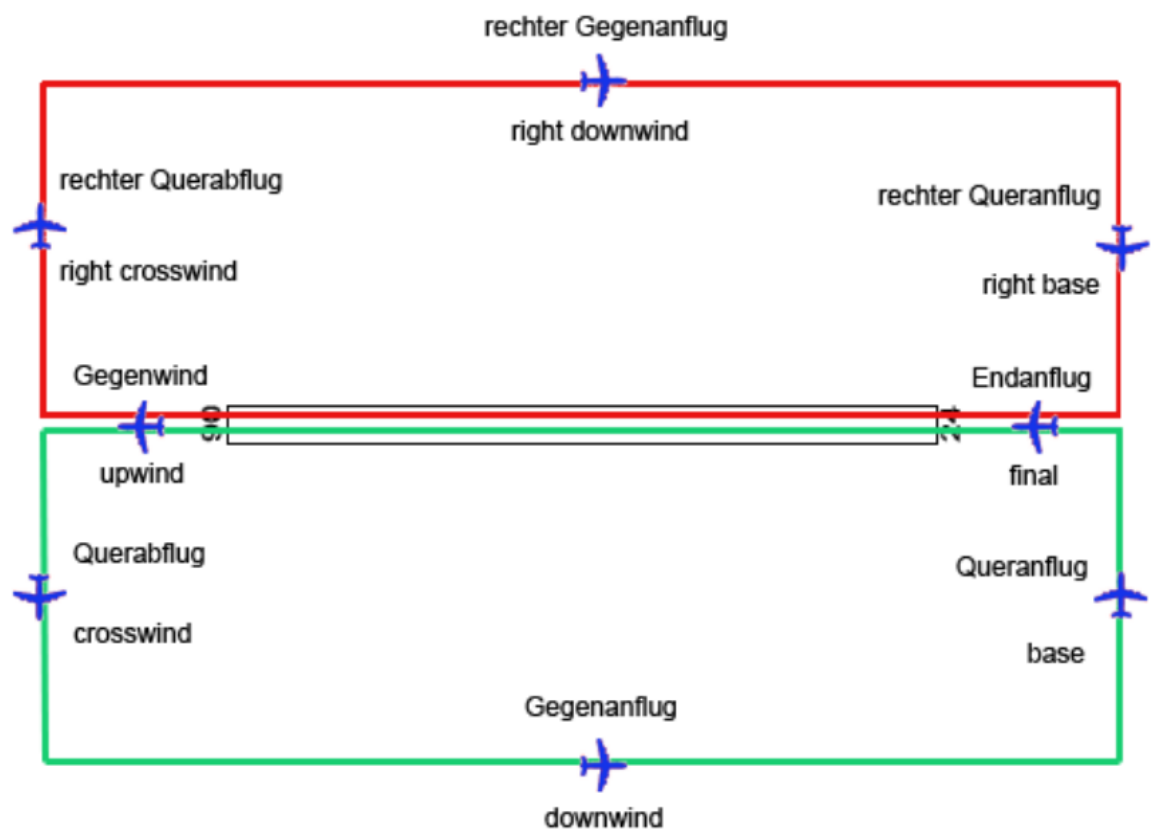
- IFR approach on final (<4 NM)
- VFR in the traffic circuit, VFR departure via a route, VFR entry via the same route
- Two VFR departures/arrivals via the same route, where the following aircraft is faster
- IFR departure and VFR in the circuit near the departure sector

Now that you have read a lot about traffic information, it is time to learn how to put it into practice in the next chapter.

Examples of traffic information can be found in the [corresponding article](#).

# Traffic circuit

The **traffic circuit** or **traffic pattern** (**German: Platzrunde**) ensures that approach and departure procedures at uncontrolled airfields run smoothly and, above all, safely. They provide orientation and prevent serious collisions. They also help pilots to develop their flying skills, as they can use the circuits to make as many landings as possible in a short amount of time. Particularly in private pilot training, traffic circuits are flown at the beginning to give the student pilot a feel for take-offs and landings. Traffic circuits are only defined and published for uncontrolled aerodromes. At controlled aerodromes, air traffic controllers direct the aerodrome traffic, but the vocabulary remains the same. The traffic circuit is usually flown at **1000 ft AGL**.



If we mention "traffic circuit", a "crosswind", "downwind" or "base", this refers to the sections of the **standard traffic circuit** (left turns).

If you want to refer to the corresponding sections of the right-hand circuit shown in red in the picture, you speak of the "right traffic circuit", the "right crosswind", "right downwind" or "right base".

The same applies to the German words.

There is no "Right Upwind" or "Right Final", as these sections are identical for the right-hand traffic circuit and standard traffic circuit.

Unless otherwise specified by the responsible aviation authority, aerodrome circuits are flown at a distance of approx. 1.5 km (1 NM) from the runway and to the **left** (counterclockwise) so that the

pilot sitting on the left can keep an eye on the runway throughout the entire maneuver. If we take off in the other direction due to the wind or are instructed by the tower to turn right, everything remains the same. The only difference is that we now report the right upwind, right downwind and right base. The final is given without directional information.

At large controlled aerodromes such as Berlin, Hamburg, Düsseldorf, Frankfurt and Munich, there are no published aerodrome circuits, so the pilot is given a little more freedom here. The reason for this is that there is a very wide range of aircraft flying at these airports, from small monoplanes to airliners. If a circuit were to be published, it would either be too large for a C172 or too narrow for an A320. At smaller, partly uncontrolled airfields, on the other hand, you will almost always find exactly published traffic circuits, which then usually avoid towns and villages.

## Components of the traffic circuit

The aerodrome circuit consists of the following sections:

### Abflug / Depature

In this phase, the pilot is climbing and takes all the necessary steps after take-off: Retract flaps, switch off landing lights, retract landing gear and other important steps prescribed by the checklist.

### Querabflug / Crosswind

During the crosswind, the airplane should have reached the altitude of the traffic circuit. The altitude is approx. 1000 feet (ft) above airfield altitude.

### Gegenanflug / Downwind

This section is parallel in the opposite direction to the active runway. Here the pilot gives their first position report by radio, reporting their callsign and the section of the traffic circuit they are in. Shortly afterwards, the tower confirms and every radio station at the airfield and the traffic circuit knows where the aircraft is located. The reason why the pilot only reports their position in this section is that other aircraft, e.g. coming from another airfield, enter the circuit through this section and might not notice other aircraft if they were not paying enough attention

### Queranflug / Base

Here the pilot slowly begins the descent and reports their position. The landing checklist should also be worked through: Reduce power, switch on carburetor preheating, switch on landing lights, etc.

### Endanflug / Final

In the last and most demanding phase, the pilot should have initiated all steps for landing. After the position report, Info / Tower gives the pilot the wind direction and speed so that these can be taken into account during landing, as well as the landing clearance at a controlled airfield. Unnecessary radio contact should be avoided now so that the pilot can concentrate fully on the landing.

## Traffic circuit phraseology example

The components of a traffic circuit often form an important part of a VFR flight. In addition to arrivals and departures, it is also used by pilots to practice the important phases of a flight in the vicinity of the aerodrome.

The pilot reports to the responsible controller (delivery or ground - depending on the airport) and informs them of their intentions.

Platzrunde / Traffic circuit	
German	English
Sylt Turm, Moin, DEMAM	DEMAM, Moin , Sylt Turm
DEMAM, Moin , Sylt Turm	DEMAM, Moin , Sylt Turm
DEMAM, C172, Apron 2, eine Person mit Information Golf an Bord, für VFR Platzrunden, erbitte Rollen.	DEMAM, C172, Apron 2, one person with information Golf, for VFR traffic circuit, request taxi.
DAM rollen Sie zum Rollhalt Piste 32, über A und B, überqueren Sie Piste 06, QNH 1018.	DAM taxi to holding point runway 32, via A and B, cross runway 06, QNH 1018.
Rolle zum Rollhalt Piste 32 über A und B, überquere Piste 06, QNH 1018, DAM.	Taxi to holding point runway 32 via A and B, crossing runway 06, QNH 1018, DAM.
DAM Rollhalt Piste 32, abflugbereit.	DAM holding point rwy 32, ready for departure.
DAM fliegen Sie in den rechten Gegenanflug Piste 32, Wind 310 Grad 10 Knoten Piste 32, Start frei.	DAM join right downwind runway 32, wind 310 degrees 10 knots rwy 32, cleared for take off.
<b>Anmerkung:</b> Standard ist immer die linke Platzrunde. Soll der Pilot in die rechte Platzrunde bzw. in einen Abschnitt dort einfliegen, muss dies immer explizit dazu gesagt werden. Das gleiche gilt für Rechtskurven, die immer genehmigt werden müssen. Ansonsten muss der Pilot eine 270° Linkskurve fliegen.	
Fliege in den rechten Gegenanflug Piste 32, Piste 32 Start frei, DAM.	Joining right downwind runway 32, runway 32 cleared for take off, DAM.
Rechter Gegenanflug Piste 32, zur Landung, DAM.	Right Downwind rwy 32, for landing, DAM.

**Anmerkung:** Wenn der Pilot seine Absichten nicht von sich aus nennt, sollte der Lotse den Piloten fragen. Hier kann es die verschiedensten Möglichkeiten geben, was ein Pilot machen möchte.

DAM, Wind 310 Grad 10 Knoten Piste 32 Landung frei.	DAM, wind 310 degrees 10 knots runway 32 cleared to land.
Piste 32 Landung frei, DAM.	Runway 32 cleared to land, DAM.
DAM rollen Sie zum Apron 2 über D I.	DAM taxi to Apron 2 via D I.
Rolle zum Apron 2 über D I, DAM.	Taxi to Apron 2 via D I, DAM.

**Note:** If a pilot is cleared for one section of a traffic circuit, they are also cleared for all following sections of this circuit and is allowed to fly them autonomously. If, for example, you clear a pilot for downwind, they will turn into base and final on their own whenever they see fit. This also means that if you need to separate them from e.g. IFR traffic on final, you need to use one or more of the possible delaying techniques.

# Delaying techniques

VFR aircraft are usually significantly slower than larger commercial aircraft. For this reason, a gap of around 7 to 9 NM is required to get slow VFR aircraft from downwind into final approach. The size of the gap depends very much on the speeds of both aircraft and the length of VFR traffic's final approach. The longer the final approach, the larger the gap must be.

To enable the shortest possible final approach, it is advisable to keep VFR traffic close to the airfield until it can turn into the final approach. The following tactics can be used for this.

## Orbits

Orbits are used to keep VFR traffic within a certain area. The instructions and conditions can vary greatly. It should be noted that no relative position information (e.g. 3 o'clock position) can be used for traffic information while circling. A full circle takes 2 minutes with a standard curve (3° per second).

Vollkreise / Orbits	
German	English
DEHEK, kreisen Sie rechts / links.	DEHEK, orbit right / left.
DEHEK, kreisen Sie querab der Schwelle / südlich des Platzes.	DEHEK, orbit abeam threshold / south of the airfield.
DEHEK, machen sie einen Vollkreis rechts / links.	DEHEK, make a right / left tree-sixty.

## Landing sequence

Together with traffic information, you can instruct a VFR pilot to follow the mentioned traffic onto final approach. The responsibility for initiating a turn that keeps the necessary separation is then transferred to the VFR pilot.

Landefolge / Landing sequence	
German	English
DEHEK, Nummer zwei, folgen Sie Airbus A320 im 3 NM Endanflug Piste 25L, melden Sie Verkehr in Sicht.	DEHEK, number two, follow Airbus A320 3 NM Final runway 25L, report traffic in sight.

# Extended downwind

Instead of orbits or a landing sequence which tells the pilot when to turn into final, the pilot can also extend their downwind. It must be noted, however, that a longer downwind also means a longer final which will take more time. This, in turn, requires big gaps between incoming IFR traffic, so extended downwinds should be used with caution.

Verlängerter Gegenanflug / Extended Downwind	
German	English
DEHEK, verlängern Sie den Gegenanflug	DEHEK, extend downwind

# Practice XXX Approach VFR

**The Practice XXX Approach VFR, German: Übungsanflug VFR** offers VFR pilots the opportunity to practice various approach procedures under visual flight conditions.

If the practice approach takes place within D (CTR), the tower handles the request. If the pilot wishes to begin the approach in airspace C or D, the approach or center station is responsible for this.

It is important to note that the approach always has to take place under VFR conditions. This generally means that the pilot must adhere to the VMC minima and all instructions from the controller are merely recommendations.

“ German: "Callsign, bleiben Sie VMC, alle Höhen- und Steuerkursanweisungen sind Empfehlungen."

English: "Callsign, maintain VMC, all altitude and heading instructions are recommendations."

It is generally advisable to vector the pilot closer to the final (5-7 NM) if there is a lot of traffic. If there is a lot of time, you can optionally ask the pilot how many miles of final approach they would like.

**(G: Controller; A:Pilot)**

Phraseology example	
Phraseology German	Phraseology EN
A: Stuttgart Turm, DESAG	A: Stuttgart Tower, DESAG
G: DESAG, Stuttgart Turm	G: DESAG, Stuttgart Tower
A: DESAG, Cessna 172, 5 Minuten südlich Sierra, 3000 Fuss, erbitte ILS Übungsanflug VFR gefolgt von einer abschließender Landung.	A: DESAG, Cessna 172, 5 minutes south S, 3000 feet, request ILS practice approach VFR followed by a full stop landing.

<b>G:</b> D-AG, Squawk 7001, QNH 1022, Piste 25	<b>G:</b> D-AG, Squawk 7001, QNH 1022, Runway 25
<b>A:</b> D-AG, Squawk 7001, QNH 1022, Piste 25	<b>A:</b> D-AG. Squawk 7001, QNH 1022, Runway 25
<b>G:</b> D-AG, identifiziert, bleiben Sie VMC, alle Höhen- und Steuerkursanweisungen sind Empfehlungen, drehen Sie rechts Steuerkurs 040	<b>G:</b> D-AG, identified, maintain VMC, all altitude and heading instructions are recommendations, turn right heading 040
<b>A:</b> D-AG, bleibe VMC, drehe rechts Steuerkurs 040.	<b>A:</b> D-AG, maintaining VMC, turn right heading 040
<b>G:</b> D-AG, sinken Sie auf 1500 Fuss, drehen Sie links Steuerkurs 340	<b>G:</b> D-AG, descend 1500 feet, turn left heading 340
<b>A:</b> D-AG, sinke auf 1500ft, drehe links Steuerkurs 340	<b>A:</b> D-AG, descending 1500 feet, turning left heading 340
<b>G:</b> D-AG, drehen Sie links Steuerkurs 280, ILS Piste 25 Übungsanflug VFR genehmigt.	<b>G:</b> D-AG, turn left heading 280, ILS runway 25 practice approach VFR approved.
<b>A:</b> D-AG, drehe links Steuerkurs 280, ILS Piste 25 Übungsanflug VFR genehmigt.	<b>A:</b> D-AG, turning left heading 280, ILS runway 25 practice approach VFR approved.

Instead of heading recommendations, traffic circuit sections can be used to guide the pilot to the final as well.

# Night VFR (NVFR)

**Night VFR (NVFR), German: Nacht-VFR** refers to visual flights at night. The rules specified therein apply from the beginning of civil twilight to the end of civil dawn. The corresponding times can be found in tables.

For you as a controller in S2 training, there are two main aspects to consider for night VFR:

- For safety reasons, a permanent radio communication is necessary. The pilot is passed on from the tower to the radar controller and vice versa. If the pilot takes off from an info station, he is responsible for independently switching to the corresponding radar controller. Accordingly, you do not allow the pilot at the outer reporting point to leave the frequency, but send him to the responsible radar controller with a handoff.
- In addition, a flight plan obligation applies for NVFR when leaving the vicinity of the airfield.

A "Night VFR" clearance analogous to an SVFR clearance is a widespread myth and does not exist

# Parachute jumping exercise (PJE)

This article is intended to convey the basic procedures of parachute dropping and to enable both pilots and controllers to handle them correctly.

## Basics

Skydiving operations (PJE-OPS) can be expected at various airfields in Germany. The season usually begins in April and ends in October. On clear days, however, you can also expect active operations in some jump zone in the winter. In the summer, especially during the weekend, it is quite common for a radar sector to be busy with several droppings at the same time. This requires increased coordination, due to additional safety distances that must be maintained to the dropping procedure.

Aircraft types in the single-engine turbine (SET) category such as C206 Soloy, C208 Caravan, Pilatus Porter PC-6, PAC P 750XL, but also multi-engine turbines (MET) such as DHC-6 Twin-Otter, Dornier DO-28 or Shorts SC7 Skyvan are often used. Exotic aircraft such as the Mil Mi-8, PLZ M28 Skytruck or even the Douglas DC9 are less common. Due to the high engine power, often in combination with STOL (short takeoff and landing) characteristics, high climb rates and even higher descent rates are to be expected. It is not uncommon for the aircraft to overtake the skydiver in freefall.

The usual dropping altitude for skydivers is 4000 m above ground or ~FL130. For training purposes or due to the traffic situation, lower drop altitudes are also possible (up to approx. 1000 m). For special events ("boogies"), drop altitudes of up to 6,500 m (FL210) are not uncommon - with oxygen supply in the aircraft.

Due to the sometimes extreme descent rates of the aircraft, the period from take-off to landing, takes around 15-20 minutes. Although the majority of parachute jumps in Germany take place at uncontrolled airfields, an air traffic control clearance must always be obtained from the responsible air traffic control center for parachute jumps in controlled airspace (see NfL I-59/07). An encounter with aircraft during freefall or gliding shall be avoided for obvious reasons.

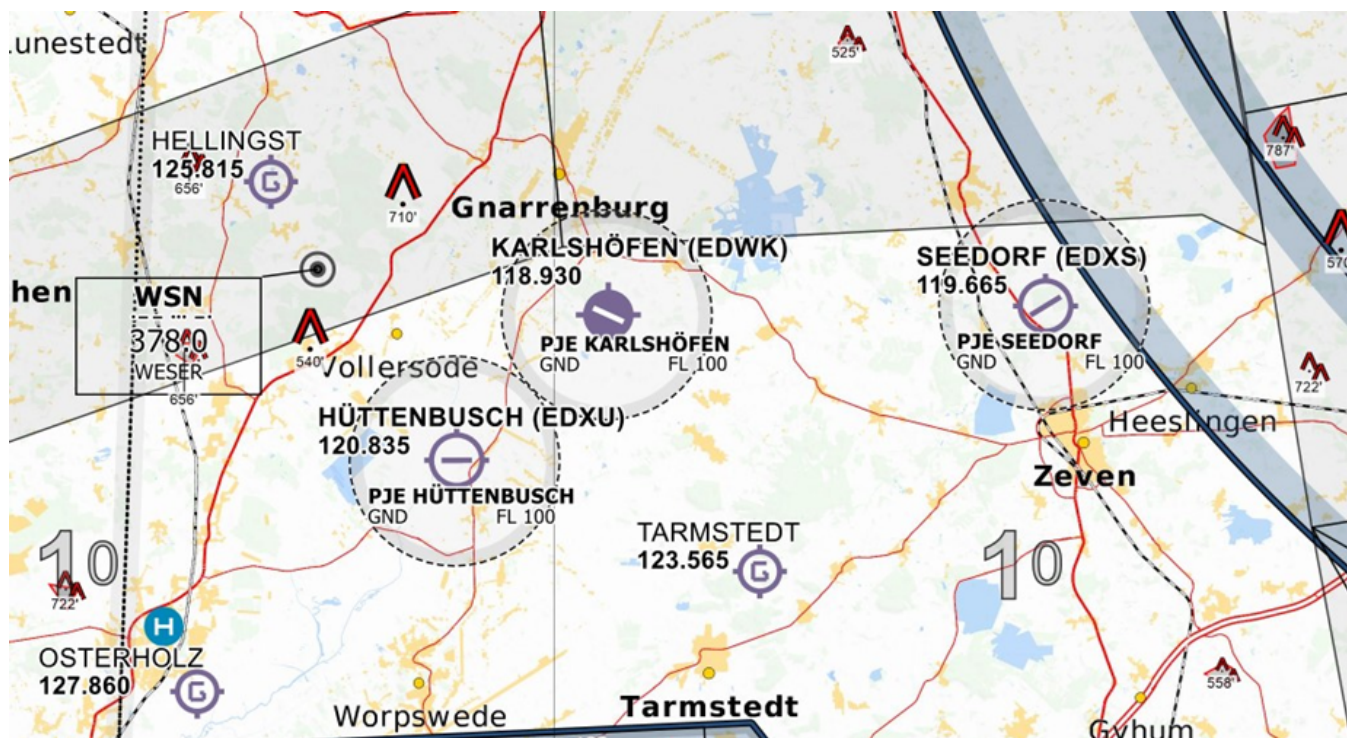
## Weather conditions

Appropriate weather minima must also be observed during skydive operations. The dropping aircraft must always comply with VFR weather minima for the respective airspace at all times, i.e. when climbing, during the so-called "jump run" (horizontal flight into the wind at reduced speed for the drop procedure) and during the subsequent descent.

Skydivers must also maintain a constant view of the ground from the moment they leave the aircraft and shall not touch any clouds during freefall or gliding.

## Jump zones

A basic distinction is made between permanent jump zones (AIP ENR 5.5-1) and individual jumps. Permanent drop zones generally have an upper limit of FL100 and a horizontal radius of 2 nm. On ICAO charts, these are highlighted as a dashed circle and marked with the addition “PJE” as well as the lower (GND) and upper limit (FL100). As a pilot, you should always pay close attention to these areas and avoid direct overflights of the airfield - especially without radio contact.



source: open flightmaps

exemplary the drop zones „Hüttenbusch“, „Karls Höfen“ and „Seedorf“ between Bremen and Hamburg.

## Procedures (for pilots and ATC)

Traffic requiring clearance and separation must always be identified. If the identification is lost (e.g. during landing), it must be re-identified at the next contact. At the beginning of the climb, the aircraft must independently set the squawk code 0025 and “Mode C” as well as obtain clearance to drop from the responsible radar controller, stating the callsign, aircraft type, dropping location and altitude.

Shortly before dropping, i.e. on the “jump run”, the pilot informs the local tower controller or air traffic controller: “Jumpers in 2 minutes”. After reaching the spot (taking into account the strength and direction of the wind at altitude and on the ground) the aircraft obtains clearance from the radar controller and drops the jumpers into the wind at reduced speed (approx. 80 knots). In the best case scenario, the jumpers will drift with the wind to the landing zone during freefall.

Unless otherwise agreed upon, safety distances to the drop zone are maintained for controlled air traffic for the period from the time the release to drop is given until three minutes after the drop has been completed (therefore note the time or start the timer, see below).

### Separation to the dropping zone:

Traffic has to be separated to the dropping-zone for 3 minutes after the "Last Jumper Out" report.

In areas with **3NM** radar separation, minimum separation is **1NM lateral, 500ft vertical**.

In areas with **5NM** radar separation, minimum separation is **2NM lateral, 500ft vertical**.

Of course, in addition to separation to the dropping zone, you must also separate to the aircraft at all times as long as it is in Airspace C, just like any other VFR in Airspace C crosser.

You can also issue instructions to the aircraft within Airspace C, for example where it should climb or descend (e.g. "climb west of the dropping zone" or "climb inside the dropping zone").

In the event of a recognizably longer duration of the planned jump in controlled airspace, the pilot must inform the responsible controller. After the last jumper has jumped, the aircraft will descend - after a clearance by the radar controller - and finally leave the frequency below airspace C. Alternatively, the clearance for descent can also be given together with the release for touchdown.

## Examples

“ Pilot: „BREMEN RADAR, DIVER, TWIN-OTTER, AIRBORNE HÖXTER, REQUEST PARADROPPING FL130.“

(Lotse: "DIVER, BREMEN RADAR, SQUAWK IDENT") - rarely needed, often identification is immediately possible due to MODE S.

Lotse: "DIVER, BREMEN RADAR, IDENTIFIED. ENTER AIRSPACE C, CLIMB TO FL130, REPORT READY TO DROP."

Pilot: "DIVER, ENTERING AIRSPACE C, CLIMBING TO FL130, WILCO."

“ Pilot: „DIVER READY TO DROP.“

Lotse: "DIVER, DROPPING APPROVED, REPORT LAST JUMPER OUT." (note the time or start a timer)

Pilot: "DIVER, DROPPING APPROVED, WILCO"

Pilot: „DIVER, LAST JUMPER OUT, REQUEST DESCEND BELOW AIRSPACE C“

Lotse: "DIVER, DESCEND APPROVED [REPORT PASSING FL100]"

[Pilot: "DIVER, PASSING FL100, REQUEST TO LEAVE FREQUENCY"]

Lotse: "DIVER, APPROVED TO LEAVE FREQUENCY"

alternatively a combined clearance:

“ Lotse: "DIVER, DROPPING AND DESCEND APPROVED, REPORT LAST JUMPER OUT.“

Pilot: "DIVER, DROPPING AND DESCEND APPROVED, WILCO"

Pilot: "DIVER, LAST JUMPER OUT"

Lotse: "DIVER, ROGER [REPORT PASSING FL100]"

for more information: <https://www.dfv.aero>

# Special VFR (SVFR)

**Special VFR (SVFR) (German: Sonder-VFR)** refers to a visual flight in a control zone when meteorological conditions are worse than VMC. The procedure only exists in a control zone and is intended for taking off or landing under VFR at controlled airports when the weather outside the control zone is better. Traffic patterns are theoretically permitted under SVFR but are usually not feasible due to the additional work involved in separation. The procedure is therefore preferably used in combination with an entry or exit from the control zone.

As you know from the previous chapters, "normal" visual flights are only possible under the following conditions:

- Ceiling at least 1500ft AGL
- Ground visibility 5km

Logically, lower minima apply for SVFR:

- Ceiling at least 600ft AGL
- Ground visibility 1500 m (800m for rotorcraft)

In addition, a speed limit of 140 knots IAS applies for SVFR pilots. SVFR is also permitted at night in Germany.

Differences between SVFR and VFR:

- **Phraseology addition Special VFR:** "*LEAVE CONTROL ZONE **SPECIAL VFR** VIA F*"
- **Traffic patterns, touch and gos and low approaches** are theoretically possible, but usually not feasible due to the separation necessary to IFR.
- **Separation obligation to IFR**

While normal VFR traffic does not have to be separated from IFR, SVFR must be separated from IFR traffic. SVFR flights between each other do not have to be separated in Germany.

See also: [Radar separation](#)

The separation needed to IFR tends to make SVFR unpleasant and causes an enormous coordination effort between tower and approach. As soon as the SVFR pilot is in the control zone, we must ensure at all times that he maintains a distance of 3 NM from any IFR traffic or is separated from IFR traffic in another way. The tower's ability to do this is very limited, which is why, depending on local arrangements, the tower controller often needs clearance from the approach controller before clearing an SVFR flight.

# VFR in Airspace C/D

## General

To cross airspace C or D under visual flight rules, pilots always require clearance from air traffic control. The controller must observe a number of points.

- The aircraft must be identified (squawk)
- The flight route and altitude should not lead directly through the approach and departure sector.
- The pilot must be informed about the entry and exit of the corresponding airspace.

The following separation for VFR flights must be observed:

Airspace C	Airspace D
<ul style="list-style-type: none"><li>• Separation IFR - VFR</li><li>• Traffic information about other VFR flights</li><li>• traffic avoidance advice on request</li></ul>	<ul style="list-style-type: none"><li>• Traffic information about IFR flights</li><li>• Traffic information about VFR flights</li></ul>

Phraseology dictates the following phrases for crossing flights:

“ German: "DURCHFLUG [VON LUFTRAUM CHARLIE (oder DELTA)] GENEHMIGT ÜBER (Flugstrecke) (Zahl) FUSS (oder FLUGFLÄCHE (Flughöhe))"

English: "CROSSING [OF AIRSPACE CHARLIE (or DELTA)] APPROVED VIA (route) (number) FEET (or FLIGHT LEVEL (level))"

German: "FLIEGEN SIE AUF RADIAL (drei Ziffern) VON (Name der VOR) BIS (markanter Punkt)"

English: "PROCEED ON RADIAL (three digits) OF (name of VOR) TO (significant point)"

German: "VERLASSEN SIE LUFTRAUM CHARLIE (oder DELTA) RICHTUNG (oder STEUERKURS (drei Ziffern), oder IN (Zahl) FUSS (oder FLUGFLÄCHE (Flughöhe)) [(Begründung)]"

English: "LEAVE AIRSPACE CHARLIE (or DELTA) DIRECTION (or HEADING (three digits), or AT (number) FEET (or FLIGHT LEVEL (level)) [(reason)]"

# Phraseology examples

Let's take a look at the following phraseology examples.

**(G: Controller; A:Pilot)**

Phraseology example VFR crossing airspace C	
Phraseology German	Phraseology English
<b>A:</b> Langen Radar, gude, DEMAM	<b>A:</b> Langen Radar, DEMAM
<b>G:</b> DEMAM, Langen Radar	<b>G:</b> DEMAM, Langen Radar
<b>A:</b> DEMAM, C172, 5 Meilen nördlich Metro, VFR in 3400 Fuß, erbitte Durchflug durch Luftraum Charlie über Metro und Charlie VOR, 4000 Fuß.	<b>A:</b> DEMAM, C172, 5 miles north of Metro, VFR at 3400 feet, request crossing airspace Charlie via Metro and Charlie VOR, 4000 feet.
<b>G:</b> D-AM, squawk 4133.	<b>G:</b> D-AM, squawk 4133.
<b>A:</b> Squawk 4133, D-AM.	<b>A:</b> Squawk 4133, D-AM.
<b>G:</b> D-AM, identifiziert, 3400 Fuß. Durchflug genehmigt über Metro und Charlie VOR, Flugfläche 60.	<b>G:</b> D-AM, identified, 3400 feet. Crossing approved via Metro and Charlie VOR, flight level 60.
<b>A:</b> Durchflug genehmigt über Metro und Charlie VOR, Flugfläche 60, D-AM.	<b>A:</b> Crossing approved via Metro and Charlie VOR, flight level 60, D-AM.
<b>Note:</b> You should only clear flights through arrival or departure sectors missed approaches areas with great care, because there is a high probability for conflicts there. Ideally, the crossing flight is separated from IFR traffic.	
<b>G:</b> D-AM, Sie fliegen in Luftraum Charlie ein.	<b>G:</b> D-AM, you are entering airspace Charlie
<b>Note:</b> The entry information is important to the pilot, for them, separation and spacing rules change, as well as maybe the minima. Also, it allows them to cross check their navigation.	
<b>G:</b> D-AM, Sie verlassen Luftraum Charlie. Verlassen der Frequenz genehmigt. Squawk VFR, ade.	<b>G:</b> D-AM, you are leaving airspace Charlie. Approved to leave frequency. Squawk VFR, goodbye.
<b>A:</b> Verlassen der Frequenz genehmigt, squawk VFR, D-AM.	<b>A:</b> Approved to leave frequency, squawk VFR, D-AM.

**Note:** If necessary, leaving the airspace can be instructed explicitly

**G:** D-AM, verlassen Sie Luftraum Charlie Steuerkurs 180 in 2500 Fuß oder darunter wegen Verkehr.

**G:** D-AM, leave airspace Charlie heading 180 at 2500 feet or below due to traffic.

**(G: Controller; A:Pilot)**

### Phraseology example VFR crossing airspace D (Non-CTR)

Phraseology German	Phraseology English
<b>A:</b> Langen Radar, gude, DEMAM	<b>A:</b> Langen Radar, DEMAM
<b>G:</b> DEMAM, Langen Radar.	<b>G:</b> DEMAM, Langen Radar.
<b>A:</b> DEMAM, C172, 5 Meilen westlich Aalen, VFR in 3400 Fuß, erbitte Durchflug durch Luftraum Delta Richtung Süden über Göppingen und Reutlingen, 5000 Fuß.	<b>A:</b> DEMAM, C172, 5 miles west of Aalen, VFR at 3400 feet, request crossing airspace Delta to the south via Göppingen and Reutlingen, 5000 feet.
<b>G:</b> D-AM, squawk 4133.	<b>G:</b> D-AM, squawk 4133.
<b>A:</b> Squawk 4133, D-AM.	<b>A:</b> Squawk 4133, D-AM.
<b>G:</b> D-AM, identifiziert, 3400 Fuß. Durchflug genehmigt über Göppingen und Reutlingen, halten Sie Höhenblock Flugfläche 60 bis Flugfläche 70.	<b>G:</b> D-AM, identified, 3400 feet. Crossing approved via Göppingen and Reutlingen, maintain block flight level 60 until flight level 70.
<b>A:</b> Durchflug genehmigt über Göppingen und Reutlingen, halte Höhenblock Flugfläche 60 bis Flugfläche 70, D-AM.	<b>A:</b> Crossing approved via Göppingen and Reutlingen, maintain block flight level 60 until flight level 70, D-AM.
<b>Note:</b> You should only clear flights through arrival or departure sectors missed approaches areas with great care, because there is a high probability for conflicts there. Ideally, the crossing flight is separated from IFR traffic.	
<b>G:</b> D-AM, Sie fliegen in Luftraum Delta ein.	<b>G:</b> D-AM, you are entering airspace Delta.
<b>Note:</b> The entry information is important to the pilot, for them, separation and spacing rules change, as well as maybe the minima. Also, it allows them to cross check their navigation.	

<b>G:</b> D-AM, Sie verlassen Luftraum Delta. Verlassen der Frequenz genehmigt. Squawk VFR, ade.	<b>G:</b> D-AM, you are leaving airspace Delta. Approved to leave frequency. Squawk VFR, goodbye.
<b>A:</b> Verlassen der Frequenz genehmigt, squawk VFR, D-AM.	<b>A:</b> Approved to leave frequency, squawk VFR, D-AM.
<b>Note:</b> If necessary, leaving the airspace can be instructed explicitly	
<b>G:</b> D-AM, verlassen Sie Luftraum Delta Richtung Süden in 3500 Fuß oder darunter wegen Verkehr.	<b>G:</b> D-AM, leave airspace Delta direction south at 3500 feet or below due to traffic.

# Procedures with Helicopters and Helicopter Missions

## General

This article outlines recommendations for air traffic controllers when dealing with helicopters, particularly under Visual Flight Rules (VFR). Helicopters can also fly under IFR, but this is relatively rare.

Regardless of the flight rules, helicopters generally follow (almost) the same rules as fixed-wing aircraft.

This means that regular VFR arrivals/departures, traffic patterns, and practice approaches with helicopters should be handled by air traffic controllers in the same way as they would for a fixed-wing aircraft.

## Callsigns

All helicopters registered in Germany have the **registration "D-H...."** and, depending on whether they are flying privately or for an organization/airline, can call with either their registration or the operator's callsign, just like regular airplanes.

**Police helicopters** in Germany belong either to one of the 16 state police helicopter squadrons or the Federal Police. Their respective call signs can be found [in this article](#).

**Rescue helicopters** can belong to either state or private organizations. The respective call signs can also be found [in this article](#).

A rescue helicopter on an active mission may optionally append "**RESCUE**" to its callsign during the initial call, although it may also be on a mission without this addition.

## Transponder Code

**Rescue helicopters** generally squawk **0020**, although there may be local exceptions. On radar, these aircraft are displayed as "RESCUE."

**Police helicopters** generally squawk **0036** (state police) or **0023** (federal police). This is displayed on the radar as "POL" or "BPO." At night, they may squawk **0037**, which is displayed on radar as "BIV", indicating that the pilot is using "**Bildverstärkerbrillen**" (night vision goggles).

If the pilot of a rescue or police helicopter is squawking the standard VFR code 7000, you should assign a realistic squawk code as an air traffic controller.

For all other helicopter flights, the same transponder codes apply as for any other VFR aircraft.

## Ground Movement / Takeoffs and Landings

Unlike fixed-wing aircraft, helicopters usually do not have wheels for ground movement but instead have skids, allowing them to only land and take off vertically. Therefore, helicopters do not taxi but instead "**air-taxi**," typically at a height of about 3 meters (10 feet) above the ground. Taxi clearances should be adjusted accordingly (see phraseology examples).

Some exceptions exist where helicopters have landing gear with wheels instead of skids. For example, the Bell 430 is optionally available with wheels. However, since helicopters are not visible on VATSIM, we generally assume an air-taxi.

Additionally, a helicopter may take off from any intersection along a runway, including the end of the runway for a vertical takeoff. Many pilots prefer a horizontal takeoff though, so enough runway should be made available. Normal **runway separation**, as with fixed-wing aircraft, applies. Helicopters can also take off from a **helipad**, if available at the airport. A takeoff from a regular General Aviation Terminal (GAT) position is generally not permitted.

The same applies to landings: Helicopters can land either vertically or normally on a runway, and a landing clearance should only be given when the runway is clear, just as with a fixed-wing aircraft.

## Hovering

Hovering means staying stationary in the air. Aerodynamically, helicopters can achieve this by balancing lift and weight, and keeping the helicopter level so it does not tilt in any direction.

However, this is a demanding procedure, especially without technical assistance, as it requires constant control inputs from the pilot to maintain the hover.

Therefore, you should **ask the pilot** if they are capable of hovering before giving such an instruction. Especially with simpler helicopters (e.g., Robinson R44), the pilot may prefer to fly less demanding full circles.

For controllers, instructing a helicopter to hover is one of the most efficient delay tactics, as it requires very little space and does not affect other aircraft. Therefore, hovering can be done close to or even between runways.

## Off-field Landings / Takeoffs

Off-airport landings/takeoffs refer to any landings outside of an airport. Legally, Germany's Aviation Act (§25 Abs. 1 LuftVG) mandates that all landings must occur at an airport, and off-field landings are prohibited.

However, exceptions apply when a *landing is required for safety reasons or to assist in an emergency involving life*. This is typically the case for police and rescue missions.

It is not the air traffic controller's responsibility to verify the authorization for an off-airport landing. If a pilot requests an off-airport landing, you can assume they have the necessary authorization, particularly on VATSIM.

**No takeoff or landing clearance is issued for off-airport landings or takeoffs.** Specific phraseology examples can be found below.

## Airspace Minima

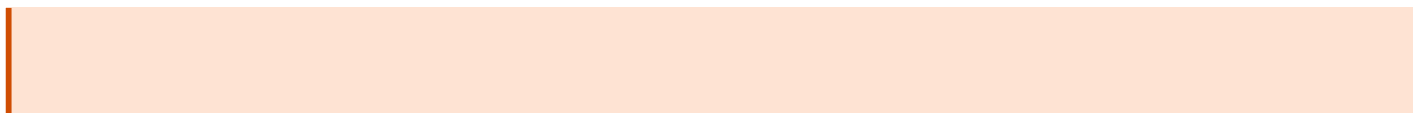
In **Class G** airspace or during **Special VFR**, helicopter **pilots** must maintain a **minimum flight visibility of 800 meters** (compared to 1500 meters for fixed-wing aircraft).

**Controllers** must also ensure a minimum **ground visibility of 800 meters** for helicopters under **Special VFR** within a control zone (1500 meters for fixed-wing aircraft).

## Priority Missions

Rescue and police helicopters often fly priority missions, though this is not always the case. Controllers should confirm whether the pilot is on an urgent mission or requires priority.

If so, this means allowing the helicopter to fly the most direct route to its destination. In real life, this often involves flying a single heading from start to finish, potentially cutting directly through an airport's approach or departure sector. This may require delaying other departures or, in the worst-case scenario, forcing an aircraft to go around so the helicopter can reach its destination without delay. If the situation is less urgent, the helicopter may hover near the final approach sector or make a slight turn to cross the final approach course at low altitude (minimum 4 NM), staying therefore below arriving aircraft. Clear communication between the controller and pilot is crucial.



On VATSIM, however, according to the Code of Conduct point B6, no flight can demand priority over others.

A pilot may request priority, but as a controller, you are not obligated to treat them as such.

In reverse, other traffic should only be delayed if all involved pilots agree. Especially during high traffic, other pilots should not be disadvantaged for a police or rescue helicopter.

## Phraseology and examples

Communication with rescue and police helicopters is almost always conducted in **English**. On VATSIM, however, pilots may occasionally communicate with you in German.

Since helicopters often fly to destinations outside airports or make other unusual requests, standard phraseology may not always apply. A simple "Proceed as requested," with additional instructions if necessary (e.g., "Stay east of runway XY," "Standby for crossing final runway XY"), is often the best approach.

### Ground Movement

Phraseology EN	Phraseology DE
A: Frankfurt Tower, D-HAAG, request air-taxiing	A: Frankfurt Turm, D-HAAG, erbitte Schweben
G: D-HAAG, Frankfurt Tower, air-taxi to holding point runway 18 intersection S via Y7, Y5 and S, report ready	G: D-HAAG, Frankfurt Turm, schweben Sie zum Rollhalt Piste 18, Rollbahneinmündung Sierra über Y7, Y5 und S, melden Sie abflugbereit

### Takeoff / Landing on a helipad

Phraseology EN	Phraseology DE
A: D-HAAG, wind 210 degrees, 5 knots, cleared for takeoff (from) helipad	A: D-HAAG, Wind 210 Grad, 5 Knoten, Start frei vom Helipad
A: D-HAAG, wind 210 degrees, 5 knots, cleared to land Helipad	G: D-HAAG, Wind 210 Grad, 5 Knoten, Landung Frei Helipad

### CTR crossing

Phraseology EN	Phraseology DE
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A: Frankfurt Tower, Christoph 2 Rescue	A: Frankfurt Turm, Christoph 2 Rescue
G: Christoph 2, Frankfurt Tower	G: Christoph 2, Frankfurt Turm
A: Christoph 2, just airborne at the Uniklinik, request to proceed direct to Darmstadt City	A: Christoph 2, gerade bei der Uniklinik abgehoben, erbitte direkten Flug nach Darmstadt
G: Christoph 2, roger, QNH 1006, runways 25 and 18, proceed as requested	G: Christoph 2, verstanden, QNH 1006, Pisten 25 und 18, fliegen Sie wie gewünscht
G: Christoph 2, traffic, Boeing 737 on 3 miles final runway 25L, report in sight	G: Christoph 2, Verkehr, Boeing 737 im 3 Meilen Endanflug Piste 25L, melden Sie in Sicht
G: Christoph 2, cross behind mentioned traffic to the south, caution wake turbulence	G: Christoph 2, kreuzen Sie hinter genanntem Verkehr den Endanflug Piste 25L, Vorsicht Wirbelschleppen

### Off-field landing

Phraseology EN	Phraseology DE
A: Christoph 2, short prior Uniklinik, request to leave	A: Christoph 2 kurz vor der Uniklinik, erbitte Verlassen der Frequenz
G: Christoph 2, (wind at the field 210 degrees, 17 knots*) approved to leave frequency, report prior airborne again*	G: Christoph 2, (Wind am Flughafen 210 Grad, 17 Knoten*) verlassen der Frequenz genehmigt, vor dem Abheben wieder melden*

\*Ein Windcheck vom Platz ist optional, aber gerade bei stärkeren Winden für den Piloten hilfreich. Wenn die Landung direkt im Anflug- oder Abflugsektor ist, kann man explizit als Lotse anweisen, dass der Pilot sich **vor** dem Abheben melden soll, um ggf. Verkehrsinformationen zu geben

### Off-field takeoff

Phraseology EN	Phraseology DE
A: Frankfurt Tower, Christoph 2	A: Frankfurt Turm, Christoph 2
G: Christoph 2, Frankfurt Tower	G: Christoph 2, Frankfurt Turm
A: Christoph 2, airborne again at Darmstadt, request to proceed direct Uniklinik	A: Christoph 2, wieder abgehoben in Darmstadt, erbitte direkten Flug zur Uniklinik
G: Christoph 2, roger, QNH 1006, runways 25 and 18, proceed as requested	G: Christoph 2, verstanden, QNH 1006, Pisten 25 und 18, fliegen Sie wie gewünscht

Further prhaseology examples can be found [in this article \(German\)](#).