ATS Surveillance (APP & Area Control)

This page details procedures for providing air traffic control service using ATS surveillance (secondary radar, MLAT, or ADS-B.) This includes Approach (APP) and Area Control positions.

Transition Altitude & Level

The Transition Altitudes in the Reykjavik CTA are:

- **Iceland:** 7000ft
- **Faroe Islands (EKVG):** 7500ft
- **Greenland:** Varies by aerodrome, see table below for reference.

Airport	TA
Ilulissat (BGJN)	6000ft
Kulusuk (BGKK)	7000ft
Maniitsoq (BGMQ)	9000ft
Narsarsuaq (BGBW)	9000ft
Constable Pynt (BGCO)	6000ft
Nuuk (BGGH)	7000ft
Paamiut (BGPT)	6000ft
Qaanaaq (BGQQ)	6500ft
Sisimiut (BGSS)	8000ft

Upernavik (BGUK)	6000ft
Uummannaq Qaarsut (BGUQ)	10,000ft
Aasiaat (BGAA)	6000ft

> **NOTE:** The TAs listed above may become out of date over time. Please always refer to the AIP for the correct TA of a given airport or region.

The Transition Level shall be determined by adding a certain number of feet to the Transition Altitude, depending on the current local QNH. The following table shall be used:

QNH	<929	930-946	947-963	964-979	980-996	997-1012	>1013
TL	*+3000ft* *from TA*	*+2500ft*	*+2000ft*	*+1500ft*	*+1000ft*	*+500ft*	*+0ft*

Horizontal Separation Under ATS Surveillance

In practice, the minimum horizontal separation under ATS surveillance in the Reykjavik CTA/OCA is:

- **3 NM** within 30 NM radius of KFV VOR (to be used only by Keflavik & Reykjavik Approach)
- **5 NM** east of 30W*
- **10 NM** west of 30W*

> *Strictly speaking, per Icelandic regulations, this is subject to the use of ADS-B surveillance and the altitude/level of the aircraft. Because enroute ADS-B surveillance is now available throughout the *entire* Reykjavik CTA/OCA, in practice the distinction between 5 & 10 NM separation is the 30W meridian (the boundary between the West & South sector) with level not being a factor.

Vertical Separation

The minimum vertical separation in the Reykjavik CTA is as follows:

- **Below FL290:** 1000ft for all aircraft
- **FL290-FL410:** 1000ft* or 2000ft between a formation flight and any other aircraft
- **Above FL410:** 2000ft for all aircraft
- **At or above FL450:** 4000ft between supersonic aircraft, and between supersonic aircraft and any other aircraft

**Technically, this is subject to aircraft being RVSM-equipped. However, on VATSIM, we assume that any aircraft that has filed an RFL above FL290 is RVSM-equipped.*

Wake Turbulence Separation

Following ICAO standards, the following minimum distances must be applied whenever:

- An aircraft directly follows another at the same altitude or less than 1,000 ft below it
- If both aircraft are using the same runway or parallel runways separated by less than 760m
- An aircraft is crossing behind another aircraft, at the same altitude or less than 300m (1000 ft) below

MINIMUM WAKE TURBULENCE SEPARATION (Nautical Miles)					
		First (Preceding) Aircraft			
		Light (L)	**Medium (M)**	**Heavy (H)**	**Super (J)**
Second (Trailing) Aircraft	**Light (L)**	—	5 NM	6 NM	8 NM
	Medium (M)	—	—	5 NM	7 NM
	Heavy (H)	—	—	4 NM	6 NM

Super (J)	—	—	—	—

A VFR trailing an IFR aircraft, as well as IFR aircraft on a visual approach, may reduce to separation below these minima. However, ATC must inform the pilot “caution wake turbulence” before the separation drops below these minima. Moreover, ATC may **not** instruct an aircraft to reduce below these minima – the pilot must do so on their own initiative.

Allocation of Cruising Levels

In BIRD CTA, cruising levels are allocated following these general rules:

IFR:

- *Below FL410:* Levels are separated by 1000ft, and allocated following the East/West semi-circular rule (i.e., Eastbound flights fly at odd thousands of feet, and Westbound flights fly at even thousands of feet)
- *Above FL410:* Levels are separated by 2000ft (thus, all valid levels are odd).

VFR:

- *3000ft – FL195:* Levels are separated by 1000ft, and allocated following the East/West semi-circular rule + 500ft (i.e., Eastbound flights fly at odd thousands of ft + 500ft, and Westbound flights fly at even thousands of ft + 500ft).

> No VFR levels are allocated above FL195, as all airspace in BIRD CTA above FL195 is Class A, and thus VFR is not permitted.

The following table of valid levels, based on Icelandic AIP ENR 1.7.5, may be used as reference:

WESTBOUND ← Track 180-359° ←		**EASTBOUND** → Track 000-179° →	
IFR	*VFR*	*IFR*	*VFR*
2000ft	2500ft	3000ft	3500ft
4000ft	4500ft	5000ft	5500ft
6000ft	6500ft	7000ft	7500ft (FL75)

8,000ft (FL80)	8500ft (FL85)	9000ft (FL90)	9500ft (FL95)
10,000ft (FL100)	10,500ft (FL105)	11,000ft (FL110)	11,500ft (FL115)
12,000ft (FL120)	12,500ft (FL125)	13,000ft (FL130)	13,500ft (FL135)
14,000ft (FL140)	14,500ft (FL145)	15,000ft (FL150)	15,500ft (FL155)
16,000ft (FL160)	16,500ft (FL165)	17,000ft (FL170)	17,500ft (FL175)
18,000ft (FL180)	18,500ft (FL185)	19,000ft (FL190)	19,500ft (FL195)
20,000ft (FL200)		21,000ft (FL210)	
22,000ft (FL220)		23,000ft (FL230)	
24,000ft (FL240)		25,000ft (FL250)	
28,000ft (FL280)		27,000ft (FL270)	
30,000 ft (FL300)		29,000ft (FL290)	
32,000ft (FL320)		31,000ft (FL310)	
34,000ft (FL340)		33,000ft (FL330)	
36,000ft (FL360)		35,000ft (FL350)	
38,000ft (FL380)		37,000ft (FL370)	
40,000ft (FL400)		39,000ft (FL390)	
43,000ft (FL430)		41,000ft (FL410)	
47,000ft (FL470)		45,000ft (FL450)	
51,000ft (FL510)		49,000ft (FL490)	
etc.		etc.	

Minimum Vectoring Altitude

The Minimum Vectoring Altitude (MVA) is the minimum altitude at which ATC may clear aircraft to during vectoring/direct routing, except if otherwise authorized for radar approaches, departures, and missed approaches.

MVA areas may be specifically defined/established in certain airspaces (e.g., the Faxi TMA.) If there is no minimum vectoring altitude explicitly established for a given area, then the MVA is either the area minimum altitude (AMA) or minimum sector altitude (MSA).

Iceland's AMAs may be found in Iceland AIP, ENR 6.1-3. In Greenland or the Faroe Islands, all AMAs and MSAs are below controlled airspace, so they are irrelevant for MVA purposes.

Descent Below Controlled Airspace

Over Iceland

IFR aircraft may be cleared to descend below controlled airspace if a descent procedure (a STAR or instrument approach procedure) has been published for their arrival aerodrome. At such aerodromes, two options are possible:

- Aircraft may be cleared for a specific descent procedure first, then cleared to descend below controlled airspace.
- Aircraft may also be simply cleared to descend below controlled airspace, without specifying a procedure. However:
  - Their cleared routing must include a waypoint/beacon where at least one of the published descent procedures at that aerodrome would originate from.
  - They must report to ATC the procedure they intend to follow.

If an IFR aircraft wishes to descend below controlled airspace at an airport with **no** published descent procedures, then they may be descended no lower than the area minimum altitude (see Iceland AIP, ENR 6.1-3), and must **cancel IFR** for further descent.

If an aircraft wishes to fly a different procedure than previously cleared, the pilot must contact the ACC unit or local AFIS unit and request a reroute to the beacon/waypoint where their requested procedure begins from. Alternatively, the pilot may cancel IFR and continue VFR.

Over Greenland, the Faroe Islands, or the Atlantic Ocean

Where the minimum altitude of a region is below the Reykjavik CTA, such as over Greenland, the Faroe Islands, or the Atlantic Ocean, aircraft may receive clearance to descend below controlled airspace without canceling IFR, even if there is no published descent procedure.

Transfer of Control & Communications

The transfer of control between ATS units takes place at the airspace boundary, or at the transfer of control point if otherwise designated. The transferring unit should transfer communications with the aircraft to the receiving unit no less than **2 minutes** or **30 NM** (whichever is greater) before the transfer of control point.

For arriving traffic, communications should be transferred to Tower as early as practicable once the aircraft is established on final approach, and at no later than **6 NM final.**

Silent Transfer of Control

Traffic on the same track, or crossing tracks, may be transferred silently (i.e., without prior verbal coordination) between two units if the longitudinal separation between them is at least:

- **10 NM** constant or increasing when the receiving sector uses 5 NM or less separation minima (i.e., east of 30W)
- **15 NM** constant or increasing when the receiving sector uses 10 NM separation minima (i.e., west of 30W)

> LOAs with neighboring sectors may specify different requirements for transferring control to that sector.

If the separation between two aircraft does not meet the above requirements, they must be verbally coordinated with the next unit before transferring control. If speed control is being used to accomplish the required separation, aircraft should be instructed to report their speed to the next controller.

Releases

A release is an approval given for a receiving unit to climb, descend, and/or turn aircraft before the transfer of control point. Standard releases may be detailed in LOPs or LOAs with neighbouring sectors. They may also be coordinated verbally, or granted via the TopSky Release function.

Note:

- Releases for turns do not exceed 45° unless explicitly coordinated.
- The transferring unit remains responsible for separation within their own AoR, unless otherwise coordinated.

Hold Management

As of writing, the Reykjavik CTA currently has no published enroute holds. Published holds on STARs which are within a TMA shall be managed by the APP unit responsible for said TMA. E.g., the published holds on BIKF's STARs, within the Faxi TMA, are managed by Keflavik Approach.

If the published holds in the TMA are full, then APP should coordinate with the overlying ACC unit to hold aircraft outside of the TMA. Such holds should be managed by the ACC unit.

Two aircraft in the same holding stack must be separated vertically by 1000ft, or greater if required by the minimum vertical separation rules. Controllers must not clear an aircraft to hold at a level lower than the Minimum Holding Altitude (MHA) for any published hold.

Published holds may be issued using the abbreviated phraseology: *"Hold at **[FIX]** as published, **[LEVEL].**"* For example:

> ICE123, hold at MEBUN as published, FL160.

When issuing a non-published hold, or if a pilot requests the full details of the hold, the following information should be given at minimum:

- Holding fix
- Level
- Inbound track/course

The following may also be specified:

- Turn direction (left or right turns. If not specified, it is assumed that the holding shall use right turns.)
- Time/length of leg (in minutes or NM. If not specified, it is assumed that the holding shall use 1-minute legs.)

The following phraseology may be used: ***[CALLSIGN]**, hold at **[FIX], [LEVEL], [INBOUND COURSE], [LEFT/RIGHT]*** turns, ***[LEG TIME/LENGTH].*** For example:

> ICE789, hold at MALAB, FL120, inbound course 097, left turns, 1 minute legs.

Change of Flight Rules

While the majority of flights are conducted under one set of flight rules (either IFR or VFR), aircraft may occasionally wish to change from one set of flight rules to another.

> **Note:** If the change of flight rules would be unsafe for any reason (e.g., aircraft requests to switch to VFR but is not in VMC), or would increase the controller's workload beyond manageable levels, the controller may deny any request to change flight rules.

Flight Planning

If an aircraft plans in advance to switch flight rules at a specific point in its flight plan, it may do so by adding "VFR" or "IFR" to its flight plan routing at that point. E.g., if the flight plan routing states:

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...KFV/N180A050 IFR DCT RK...
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...that indicates the aircraft will request to change to IFR at KFV (at which point they will be at speed 180kts and 5000ft.)

> In real life, a flight plan with a combination of IFR or VFR should be filed with the flight rule code "Y" (for IFR first then VFR) or "Z" (for VFR first then IFR.) VATSIM's flight plan form does not currently support these codes, so pilots will generally file their flight plans with the flight rules they intend to start the flight with.

Note that aircraft **do not have to pre-plan** a change of flight rules. Sometimes, requests to change flight rules are spontaneous, being driven by the constantly-evolving flight and weather situation (e.g., VFR flight finds itself in IMC and so requests IFR.)

VFR to IFR

For an aircraft to transition from VFR to IFR, the following conditions shall be fulfilled:

- The aircraft must be identified on ATS surveillance (if available), and the Mode C altitude return verified

- The aircraft should meet the IFR separation minima from other IFR aircraft (if not, ATC shall issue instructions to ensure this separation at the point that the IFR clearance becomes effective)

An IFR clearance may then be issued. As with IFR clearances issued on the ground, these clearances generally contain the following elements:

- **Clearance limit**
  - Generally the destination airport, or more rarely, a specific waypoint/beacon/fix if the pilot only wishes to continue IFR to that point
- **Routing**
  - Either "flight planned route," if the aircraft is following a previously flight planned IFR routing. ATC may also provide a routing or instructions, e.g., a radar vector
- **Level**
  - If the aircraft will climb/descend to an altitude & they were not previously given the local QNH, they should be given the QNH as well
- **Squawk** (if not previously assigned)

E.g.,

> “N804AB, cancel VFR, cleared to Isafjordur via direct KFV then flight planned route, climb FL100, squawk 4122.

The following is an example of a clearance issued to a limit that is *not* an airport (e.g., the pilot has requested only to be cleared to a specific published hold so they can descend IFR through clouds while holding, then cancel IFR once in VMC):

> “(TF-)ISN, cancel VFR, cleared IFR direct to MALAB, hold at MALAB as published, descend 3000ft, report VMC.

If ATC is unable to ensure the required separation from other IFR traffic, or does not have the capacity to handle aditional IFR in their airspace, ATC shall **deny** the aircraft's request for an IFR clearance, and may in turn deny the aircraft permission/clearance to enter a given airspace). ATC should then ask for the aircraft's intentions.

IFR to VFR

For an aircraft to transition from VFR to IFR, the pilot shall report their intention to cancel IFR to ATC. If ATC is able to accept this, ATC shall respond by acknowledging the cancellation of IFR, noting the time of cancellation, and providing any further instructions for the aircraft's continued VFR flight. E.g.,

> (TF-)ABC, IFR cancellation received at 1345z, maintain VFR, join the right hand circuit for runway 13...

If ATC is aware of IMC weather conditions in the aircraft's vicinity, or if ATC does not have the capacity to handle additional VFR in their airspace, ATC shall **deny** the aircraft's request to cancel IFR and ask for their intentions.

Revision #12
Created 27 September 2023 06:48:24 by Jonathan Fong (1308253)
Updated 22 September 2025 23:24:44 by Jonathan Fong (1308253)