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IVAO ATC Operations

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Zurich Delivery

Information Contact: ch-aoc@ivao.aero

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1. Objective

The aim of this document is to illustrate the operations of Zurich Delivery in order to improve the service provided by the first ATC that should be contacted when commencing a flight in Zurich. Despite being the position with the lowest rating requirement, it represents an important role as Delivery checks Flight Plans integrity and dictate the “tempo” of the outbound flow. This document in addition should be considered as tutorial for all the new members that have decided to start a virtual ATC career from Zurich.

This document is part of IVAO Switzerland Rules and approved by CH-HQ. The configuration must be respected in terms of agreements, callsigns and frequencies used. Any change and amendments will be approved by CH-HQ, FIR Chiefs and Swiss ATC Department. Amendments will be communicated via virtual NOTAM or newer version of this document.



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2. Zurich Delivery – LSZH_DEL

Callsign	Frequency	Station Name
LSZH_DEL	121.925	Zurich Delivery

Zurich Delivery is responsible for IFR clearances for traffic departing from Zurich.

The position is not subjected to any other controllers online or offline.

Pilots contact Zurich Delivery spontaneously as this is the first ATC they are in contact with. Delivery hands off all the traffic to Apron, either LSZH_AS_GND or LSZH_AN_GND based on aircraft location.



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3. Operating Standards

ATIS

The ATIS must be prepared based on the standard as published on IVAO Switzerland division's website at the link: <http://www.iviao.ch/controller/atis> Runways configuration is dictated by Zurich Tower controller.

It should always include the station name that is Zurich Delivery.

METAR Station is LSZH.

Take-off is 28 SEC 16. In case of different configuration insert main runway and secondary as 32 SEC 34. It is pilots' job to report if unable with the current runway in use, not ATC's. Thus any reference to report unable to a specific runway is not correct.

Landing is 14 ILS. Always include the available approach procedure. In case of inactive ILS this will read 14 VORDME or 14 RNAV or 14 LOC/RNAV.

Transition Level is based on QNH and reported as FL 75 (i.e. without the first zero).

Transition Altitude is always 7000 ft.

Remarks to be left empty unless relevant information regarding the airport and its safety are required. When Datalink clearance is active (suggested) it should be reported as DATALINK ACTV.

Datalink

One of the innovation of modern aviation is the distribution of IFR clearances via ACARS (Aircraft Communications Addressing and Reporting System). This means an IFR clearance can be received as written communication by the airplane crew. Delivery controller receives a clearance request on ATC's system and replies with all the relevant information. The readback is not necessary as the pilot accept via ACARS.

IVAO implemented the ACARS technology for clearances through a webpage based tool that can be reached at the link: <http://datalink.iviao.aero/>

The system automatically recognizes if you are connected as ATC or Pilot. As ATC you can activate the datalink and pilots will be able to see the airport as available to deliver clearances via datalink. Remember to not close the webpage as well as to check it from time to time as some browsers stop the alert sound that the page generate when a clearance is requested.

Basic rules for the use of the Datalink in Switzerland:

- Use of Datalink is not mandatory! However it is HIGHLY suggested to implement Datalink clearances all the time. It is at pilot's discretion to request clearance via Datalink or Voice, the controller cannot deny a voice clearance even if Datalink is offered.



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- The "next frequency" box on the Datalink page will be populated with the respective Apron frequency where the pilot will receive start-up and push back instructions. However the pilot will report ready to push and start to the delivery that will communicate the switch.

Phraseology

Below some basic phraseology essential to the Delivery position.

SWR85KV: Zurich Delivery good day, Swiss 85 KV, Airbus 320 at Gate B36 with Info Kilo, request IFR to Geneva

LSZH_DEL: Swiss 85 KV, Zurich Delivery good day, Kilo is current; to Geneva runway 28, VEBIT 2W, squawk 1000

SWR85KV: Delivery, Swiss 85 KV, runway 28, VEBIT 2W, squawk 1000

LSZH_DEL: Swiss 85 KV, Delivery, readback correct

SWR85KV: Delivery, Swiss 85 KV, ready to push and start

LSZH_DEL: Swiss 85 KV, Delivery, monitor* Apron on 121.750, bye

SWR196: Zurich Delivery good day, Swiss 196, Airbus 330 at Gate E34 with Info Bravo, request IFR to Beijing, unable 28

LSZH_DEL: Swiss 196, Zurich Delivery good day, Bravo is current; to Beijing runway 16, DEGES 2S, squawk 3026; Calculated Take Off Time 1240

SWR196: Delivery, Swiss 196, runway 16, DEGES 2S, squawk 3026, copied 1240

LSZH_DEL: Swiss 196, Delivery, readback correct

SWR196: Delivery, Swiss 196, ready to push and start

LSZH_DEL: Swiss 196, Delivery, monitor* Apron on 121.850, bye

*Please note: monitor is different from contact.



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Flight Plan Integrity

This is the most important and somehow complex task for a Delivery controller. In real life Flight Plans are checked by European and Swiss planning offices that together accept or deny a plan based on route, aircraft, requested flight level and time of the day.

On the IVAO simulation the traffic flow is much less complex so there is less stringent rules in order to accept a flight plan; however the check is performed by Delivery instead of a dedicated office.

There are 6 items to be checked all the times (FEDRR):

1. Flight Rule:
 - IFR should have I
 - IFR-to-VFR should have Y
2. Equipment:
 - If flying an RNAV route the aircraft must have RNP equipment marked as R in the equipment list. This requires the item PBN/ in the remark section too with A1 (RNAV 10), B1 (RNAV 5), C1 (RNAV 2), D1 (RNAV 1) and S1 depending on accuracy of RNAV equipment. Some instrument departure like DEGES 2S requires P-RNAV or RNAV 1
 - In order to fly inside RVSM airspace (FL290 to FL410) the aircraft has to be equipped with RVSM approved altimeters and report W in the equipment list. Please note all the liners (e.g. A320, B737, etc.) are RVSM equipped, all the time even if they fly outside RVSM
3. Departing aerodrome
 - Check LSZH is rightly spelled
4. Departure time
 - Expected Time of Departure should be at least 10 minutes in the future from connection
5. Requested Flight Level
 - The general rule is Even FL for northbound routes and Odd FL for southbound routes. There is an exception: Eastbound flight via Z2, Z3, Z4, Z5 and Z6 airways are on Odd FL despite the route is East-Northeast; this is common with EDDM as destination
6. Route
 - The first fix of the route must be a valid SID point. In addition the available SID to the fix should be consistent with the equipment of the aircraft: NON-RNAV plane cannot fly a RNAV SID

Traffic Flow Management

A basic role of Delivery is to set the pace of outbound flow. The major target is to reduce waiting time and fuel consumption. In real airport operators have developed proprietary software that based on complex algorithms are able to dictate times for the outbound stream based on 5 or 6 parameters at the same time.

IVAO has the luxury of a lower traffic amount, excluding during peak events. As such those complex algorithms won't have much use in our virtual world. However there is still one situation in which Delivery should intervene. In case of two or more aircraft leaving on the same Standard Instrument



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Departure (SID) the delivery should either alternate the common SID with a different one by sorting departures in a different order or basically delaying the second departure on the same SID by 5 minutes. This will allow a good separation to be maintained. When assigning a planned delay during a clearance, as shown in the “phraseology” paragraph, the Calculated Take Off Time (CTOT) should be reported to the aircraft crew.

One another situation in which CTOT should be used is when there is a long queue, defined as 6 or more, aircraft at the holding point ready to depart.

Lastly, CTOT must be used to inform aircraft of their expected departure time when the airport is affected by an emergency that required the temporary reduction of traffic.

However be careful with CTOT because it has a tolerance of -5 to +10 minutes once assigned.

Standard Instrument Departure (SID)

The SIDs marked as preferred should be always the first choice for all traffics. In case a non-preferred SIDs is requested or has to be assigned due to flight plan route or aircraft limitation the assignment has to be coordinated with Departure or Arrival controller. In case both are offline and Swiss Radar is online, the coordination should be done with Swiss Radar (LSAZ_SSL_CTR or LSAS_LM1_CTR).

If the route includes a fix that belongs to a non-active SID the traffic must be re-cleared via an active SID. The most common example is traffic to Italy via GERSA that is cleared via VEBIT SID.

The tables below are valid as at AIRAC 1505.

RWY 28			
SID	Precision	Preferred	Notes
DEGES 2W	B-RNAV or RNAV 5 required	✓	
VEBIT 3W	B-RNAV or RNAV 5 required	✓	
GERSA 2W	B-RNAV or RNAV 5 required		Activation by NOTAM
ALBIX 2V	NON-RNAV		
WIL 3V	NON-RNAV	✓	
ZUE 2V	NON-RNAV	✓	



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RWY 16			
SID	Precision	Preferred	Notes
DEGES 2S	P-RNAV or RNAV 1 required	✓	
VEBIT 3S	B-RNAV or RNAV 5 required	✓	
DEGES 2R	B-RNAV or RNAV 5 required		
GERSA 2S	B-RNAV or RNAV 5 required		Activation by NOTAM
ALBIX 2R	NON-RNAV		
WIL 2Q	NON-RNAV		Propeller only in VMC
WIL 3R	NON-RNAV	✓	
ZUE 2R	NON-RNAV	✓	

RWY 10			
SID	Precision	Preferred	Notes
DEGES 1E	P-RNAV or RNAV 1 required	✓	
GERSA 1C	P-RNAV or RNAV 1 required	✓	
VEBIT 2E	B-RNAV or RNAV 5 required	✓	
DEGES 1D	B-RNAV or RNAV 5 required		
GERSA 1E	B-RNAV or RNAV 5 required		Activation by NOTAM
ALBIX 1C	NON-RNAV		
ALBIX 1D	NON-RNAV		
WIL 2C	NON-RNAV		Propeller only in VMC
WIL 2D	NON-RNAV	✓	
ZUE 1D	NON-RNAV	✓	

RWY 32			
SID	Precision	Preferred	Notes
DEGES 2L	B-RNAV or RNAV 5 required	✓	
VEBIT 2N	B-RNAV or RNAV 5 required	✓	
DEGES 1N	B-RNAV or RNAV 5 required		
GERSA 1N	B-RNAV or RNAV 5 required		Procedure suspended
SONGI 1N	B-RNAV or RNAV 5 required		Procedure suspended
SONGI 2L	B-RNAV or RNAV 5 required		Procedure suspended
ALBIX 1M	NON-RNAV		
WIL 2M	NON-RNAV	✓	
ZUE 1M	NON-RNAV		
ZUE 2L	NON-RNAV	✓	



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RWY 34			
SID	Precision	Preferred	Notes
DEGES 2F	B-RNAV or RNAV 5 required	✓	
VEBIT 2H	B-RNAV or RNAV 5 required	✓	
DEGES 1H	B-RNAV or RNAV 5 required		
VEBIT 1K	P-RNAV or RNAV 1 required		
GERSA 1H	B-RNAV or RNAV 5 required		Procedure suspended
SONGI 1H	B-RNAV or RNAV 5 required		Procedure suspended
SONGI 2F	B-RNAV or RNAV 5 required		Procedure suspended
ALBIX 1G	NON-RNAV		
WIL 2G	NON-RNAV	✓	
ZUE 1G	NON-RNAV		
ZUE 2F	NON-RNAV	✓	

RWY 14			
SID	Precision	Preferred	Notes
DEGES 2B	P-RNAV or RNAV 1 required	✓	Activation by NOTAM
VEBIT 3B	B-RNAV or RNAV 5 required	✓	Activation by NOTAM
GERSA 2B	B-RNAV or RNAV 5 required		Activation by NOTAM
ALBIX 2A	NON-RNAV		Activation by NOTAM
WIL 3A	NON-RNAV	✓	Activation by NOTAM
ZUE 2A	NON-RNAV	✓	Activation by NOTAM

Squawk

The assignment of squawk codes is an ongoing evolving subject. The introduction of ADB-S transponders removed the requirement of unique SSR codes because the signal transmitted by the transponder includes aircraft identification. This explains why a squawk 1000 became very common in the recent months, years. However this is not applicable to all traffics.

By and large the rule is:

- 1000 if destination is France, Germany, UK, Ireland, Benelux and Spanish east coast
- 3001 to 3077 for all other destinations

Please note this is an approximation of real operations for which assignment of squawk codes is still under testing and evolution.



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Labels & TAGs

As the first controllers the filing of traffic TAGs is very important.

The scope for Tags is to provide information about clearances and restrictions given to a specific aircraft directly in its label. The receiver of this information is the next controller that will assume the aircraft when hand-off received.

A secondary role for Tags is to serve as reminder for instructions given.

There are 3 different tags:

- Altitude (A)
- Speed (S)
- Procedure/Vector/Fix Clearance (C)

As the first aim of tag writing is to incorporate information on the label for the next controller, a common code is necessary. For Altitude and Speed there is no freedom and the code is already set up in the software. However, for the Clearance tag a standard practice is needed to allow all the controllers to “speak the same language”.

- Vector to heading XXX -> HXXX
- SID abcde Xw -> abcXw
- STAR abcde Xw -> abcXw
- ILS Approach rwXX -> IXX
- VOR/DME Approach rwXX -> VXX
- Visual Approach rwXX -> VISXX
- RNAV Approach rwXX -> RXX
- Direct to VOR nnn -> nnn
- Direct to FIX abcde -> abc
- Direct to FIX abcde with Mach restriction .YY -> abc.YY
- Alternative to FP RTE for traffics going outside the FIR -> LI for Italy, LF for France and ED for Germany
- VFR Route A -> A

A special case is reserved for Altitude tag for approaching traffic. The altitude should be changed into APP as soon as the traffic is cleared to the assigned approach procedure

A trick that can be very helpful in case of high traffic load on ground for IFR clearance is to use the Altitude tag as a reminder of who received the clearance and who has not yet. Meanwhile the Procedure Clearance tag can be used as a reminder for which Flight Plans have been already checked and confirmed as correct.

In this way as soon as a Flight Plan is received the controller can check it immediately and write the tag with the assigned SID. After the clearance is communicated to the traffic, the initial climb can be



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insert in the Altitude tag. In this way the controller can use the “quiet time” to speed up operations in “busy time”.

An example:

IFR Clearance from Zurich on DEGES 2W

- A: 050
- S: n/a
- C: DEG2W

What a Good Pilot should do

The way pilots communicate and behave is very diverse. However as Delivery position you should expect a Good pilot to be in line with the following requirements as shown on Zurich AIP:

- Contact Delivery earliest 15min prior to EOBT (Expected Off-Block Time)/ETD (Estimated Time of Departure).
- If unable to accept runway according to ATIS INFO, report this to Delivery earliest 30min and latest 10min prior EOBT.
- When requesting ATC clearance, report aircraft type, stand number and ATIS identification letter.
- Aircraft with ATC Slot for remote de-icing must be ready for start-up latest 25min prior CTOT (Calculated Take Off Time).
- Aircraft with ATC Slot for RWY 10 or if crew requires for RWY 16 must be ready for start-up latest 20min prior CTOT.
- Aircraft with ATC Slot for RWY 28, 34, 32 must be ready for start-up latest 10min prior CTOT.
- Once hand-off with Apron, aircraft is on Stand By (i.e. no communications on the frequency, not even to signal you joined the channel). Apron will contact the aircraft at calculated start-up time for start-up, push-back or tow.
- In case cross bleed / cross generator start-up necessary, flight crew shall inform Apron. Apron will issue start-up clearance.



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From an idea of Dan Gianera CH-ADIR/CH-AOC/CH-TAC
With the collaboration of the entire Swiss Staff Team