

# ZAGREB FIR SECTOR MANUAL



FOR SIMULATION PURPOSES ONLY

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## Introduction

This manual is intended to be used by air traffic controllers on the IVAO network (hereinafter the Network) when controlling in Zagreb Flight Information Region (LDZO FIR). The manual provides information regarding operating procedures and standard practices in Croatian airspace.

Controllers are expected to follow IVAO Rules and Regulations at all times so as to create a comfortable, efficient and fun environment on the Network for themselves and for the pilots. Moreover, controllers must have sufficient knowledge in order for them to control a certain position on the Network. Knowledge of the Manual and Croatia AIP will be checked during practical ATC exams in Croatian Division.

Some ATC positions may be restricted by the Facility Rating Assignment (FRA) in order to maintain controller's proficiency level. Controllers are not allowed to connect on the FRA restricted position if their rating is below the requested one. You can check active FRA restrictions on the main IVAO website under the Controllers tab.

All documentation for controllers on the Network can be found via these links:

[Student controller documentation \(AS1-AS3\)](#)

[Aerodrome controller documentation \(ADC\)](#)

[Approach controller documentation \(APC\)](#)

[Area centre controller documentation \(ACC\)](#)

[Senior controller documentation \(SEC\)](#)

Real-life documentation regarding phraseology in Croatia is provided by the HKZP (Crocontrol):

[Voice communication procedures in Croatia](#) (opens in PDF format)

Real-life charts and AIP information are provided by the HKZP (Crocontrol); controllers are required to familiarise themselves with the information provided before connecting on the Network as an active ATC position in Croatia:

[Zagreb FIR AIP](#)

[VFR Manual Croatia](#)

## General

### Air traffic control positions

- Following positions exist in Zagreb FIR:

ground GND (LDZA only), tower TWR, approach APP, area centre control ACC

- Following ATC positions are manned by one person (one frequency):

LDOS TWR/APP – Osijek Tower/Approach frequency is 118.800 (procedural control). On the Network there is only the need to man LDOS APP position.

**NOTE:** Rijeka and Lošinj arrivals and departures shall be handled by LDPL APP.

### Airspace classification

- Following airspace classes exist in Zagreb FIR:

C, D, G      See **Appendix A**

**NOTE:** IFR flights are not permitted in G airspace in Croatia

### Units of measurement

Distance used in navigation, position reporting, etc. - generally in excess of 2 nautical miles	Nautical Miles / tenths
Relatively short distances such as those relating to aerodromes (e.g. runway lengths)	Metres
Altitudes, elevations and heights	Feet
Horizontal speed including wind speed	Knots
Vertical speed	Feet per minute
Wind direction for landing and taking off	Degrees Magnetic
Wind direction except for landing and taking off	Degrees True
Visibility including runway visual range	Kilometres or metres
Altimeter setting	Hectopascal
Temperature	Degrees Celsius
Weight	Metric tonnes or Kilogrammes
Time	Hours and minutes beginning at midnight UTC

## Radar services

- The radar separation minima shall be as follows:

Zagreb Area Control - 5 NM

Dubrovnik Approach Control - 5 NM

Split Approach Control - 5 NM

Zadar Approach Control - 5 NM

Zagreb Approach Control - 5 NM

Pula Approach Control - 5 NM

- In the event of radar failure or loss of radar identification, instructions will be issued to restore non-radar standard separation. If the aircraft's radio is completely unserviceable, the pilot should carry out the procedures for radio failure in accordance with provisions from Regulations on Rules of the Air and ATS. If radar identification has already been established, the radar controller will vector other identified aircraft clear of its track until such time as the aircraft leaves radar cover.
- In emergency situations, the pilot shall maintain the last assigned code, unless otherwise instructed. In addition to, the pilot may select Mode A, Code 7700, whenever he believes that would be the best course of action, in view of the nature of the situation. A pilot experiencing the radio communication failure shall operate the SSR transponder to Mode A, Code 7600 and take actions prescribed for such a situation.

## Assignment of transponder codes

- Following squawk codes will be assigned to aircraft flying inside Zagreb FIR:

6520 – 6577	IFR International
7020 – 7077	IFR Domestic
0030 – 0070	Military
0001 – 0077	VFR

- Controllers shall use the squawk generator to assign above stated codes. Link is provided below:

[Zagreb FIR squawk generator](#)

## Altimeter setting procedures

- Transition altitude is specified as 9500 ft MSL.
- Vertical positioning of aircraft when at or below the transition altitude is expressed in terms of altitude, whereas such positioning at or above the transition level is expressed in terms of flight levels. While passing through the transition layer, vertical positioning is expressed in terms of altitude when descending and in terms of flight levels when ascending.
- Flight level zero is located at the atmospheric pressure level of 1013.25 hPa (29.92 in).
- Transition level is dependent on the local QNH value. Transition level must be reported by the local ATC unit in the ATIS, or, if ATIS is unserviceable, verbally by the ATC unit when giving descent clearance to an altitude for the first time. Transition level is as follows:

FL 100	QNH 1032 – UNL
FL 105	QNH 1031 – 1014
FL 110	QNH 1013 – 996
FL 115	QNH 995 – 978
FL 120	QNH 977 – 960

## Operational language in RTF communication

- Primary language for RTF communication between ATC and pilots is English.
- Croatian may be used as the primary language only for VFR flights if both the ATC and the pilot are able to speak Croatian. ATC shall immediately revert to using English phraseology if there is a possibility for confusion of foreign pilots operating in Croatian airspace – spatial awareness (e.g. if there is a VFR flight operating in Croatian and another VFR operating with English understanding only, and both are performing same procedures).
- Croatian is usually used as the primary language for military flights while performing domestic missions. Military flights performing missions designated by NATO will use English phraesology and callsigns while operating in Croatian airspace.

## Definition of altitudes in the Manual

- Altitudes expressed in this manual are **MSL** (Mean Sea Level, using QNH setting), unless stated explicitly by adding abbreviation AGL to indicate Above Ground Level.

## VFR flights

### General

- Upper limit for operation of VFR flights is not specifically determined, while it depends on classification of the airspace.
- For departure and arrival from/to controlled and uncontrolled airports in Croatia VFR traffic shall use VFR reporting points prescribed on the charts or in the VFR Manual Croatia.

### Traffic circuit training flights

- Standard altitude for all traffic circuit training flights in Croatia, if not otherwise specified in the AIP, is **1500 ft** (approximately 1000 ft AGL).
- Mandatory reporting positions are: downwind and final.
- All non-standard traffic circuit phraseology regarding positions in the circuit must include word RIGHT to indicate a right-hand side circuit (non-standard circuit).

### VFR routes

- Aircraft operating as VFR shall prefer using Recommended VFR Routes in Croatia when flying outside of CTRs (domestic or international VFR). These routes are named: ADRIA, VELEB and PANON with a number afterwards to identify the route. Chart with Recommended VFR Routes can be found in the VFR Manual Croatia (section VFR supplements).
- Beside the routes, as mentioned above, aircraft shall use VFR reporting points to enter/exit aerodrome control zone (CTR). Aircraft shall contact responsible ATC station at least 5 minutes before entering the airspace (via the reporting points) – consult VFR Manual Croatia (Part 3 Aerodromes, AD 2 Aerodromes)

## Zagreb Airport (LDZA)

### Runway

05/23 MAG BRG 044°/224°  
dimensions 3252 m x 45 m

05 TORA TWY B 2900 m

TWY C 2150 m

23 TORA TWY D 2450 m

TWY E 2900 m

- RWY 05 is equipped with CAT II/III ILS, RWY 23 is equipped with CAT I ILS.

### ATS communication facilities

LDZA APP	Zagreb Radar	120.700	
LDZA TWR	Zagreb Tower	118.300	Croatian: Zagreb Toranj
LDZA GND	Zagreb Ground	121.850	During peak hours
ATIS	Zagreb ATIS	124.575	

### LVP

- Runway exit for RWY 05 is equipped with green/yellow coded taxiway centre line lights. Aircraft landing on RWY 05 must exit only via TWY E, where end of green/yellow centre line lights indicates the boundary of the LOC sensitive area. Departing aircraft are required to use the following CAT II/III holding position: RWY 05, Holding position on TWY A. **Intersection take-off is not permitted.**
- Taxiing is normally restricted to one aircraft ARR and one aircraft DEP movement at a time.
- Pilots shall report landing and after passing the end of the colour coded green/yellow taxiway centreline lights, RWY vacating (leaving LOC sensitive area). Pilots shall report when airborne on TWR frequency.
- The preparation phase (phase I) will be implemented when the RVR falls below 1000 m and/or the ceiling is at /or below 300 FT with downwards tendency and CAT II/III operations are anticipated. In this phase protection of sensitive areas is not yet provided.
- The operations phase (phase II) will be activated when the RVR falls below 550 m and the ceiling is at /or below 200 FT. Protection of sensitive areas is provided.
- Pilots will be informed by ATIS or RTF on first contact by the following standard message: “**Low Visibility Procedures in operation.**”
- LVP will be terminated when the RVR is greater than 800 m and the ceiling is above 300 FT and a continuing improvement of these conditions is expected. Pilots will be informed by RTF using the following standard message: “**Low Visibility Procedures cancelled at time...**”

## Departure

- There are two aprons in Zagreb, the old apron (west) and the new apron (east).
- General aviation apron is located adjacent to the west apron.
- Pushback is not required on the west apron – all positions are taxi-in and taxi-out. Pushback is required on the east apron (stands E1-E11, jetway is installed on stands E1-E8). Stands E1 and E2 are domestic, stands E3-E8 are international.
- **NOTE:** East apron – TWY **G** is the entry TWY. TWY **H** is the exit TWY.
- Aircraft taxiing out of parking positions on the west apron will always make a right turn regardless of the departure runway.
- Holding point A is the main holding point for RWY 05, all departing aircraft will taxi to holding point A unless otherwise instructed. Holding point E is the main holding point for RWY 23, aircraft will be instructed to **“Backtrack and line-up RWY 23 via E”**, unless the pilot requests or confirms that he/she is able to perform an intersection departure.
- Initial climb for all SIDs in Zagreb is **6000 ft**. When issuing an ATC clearance, controller is not required to specify the initial climb.
- Immediately after departure, if LVP are not in operation, pilot shall change frequency from LDZA TWR to LDZA APP without any ATC instruction. If connected as LDZA TWR, add this remark in the ATIS: **“After departure contact Zagreb Radar on 120.700 (or other applicable frequency, or monitor UNICOM 122.800)”**
- VFR flights (light aircraft) can depart using intersections B (RWY 05) and D (RWY 23) with ATC approval only.
- **NOTE:** Only 2 (two) VFR aircraft can perform traffic circuit training flights simultaneously inside Zagreb CTR. More aircraft can be authorised to perform traffic circuit training flights by the TWR controller in special circumstances (if there are no IFR departures/arrivals and during ATC exams).
- VFR flights leaving CTR will leave via the published VFR reporting points.

## Arrival

- Arriving aircraft will be vectored in order to intercept the ILS for RWY 05 or RWY 23 (or any other approach type).
- If RWY 05 is the arrival runway, aircraft can be instructed to direct to PIS (Pisarovina NDB, frequency 424).
- If RWY 23 is the arrival runway, aircraft can be instructed to direct to ZAG (Zagreb VOR, frequency 113.7).
- Glideslope intercept altitude for ILS 05 is 3000 ft and for ILS 23 3500 ft. Descent instructions need to be given with regard to the published MRVA chart in the manner that arriving aircraft are able to intercept glideslope at the above-mentioned altitudes while being vectored for the approach.
- Maximum localizer intercept course is **+/- 30°** in regard to the MAG CRS of the respective localizer. (applicable to all airports)
- Aircraft will vacate RWY 05 via TWYs C, D or E, if LVP are not in operation. Aircraft will vacate RWY 23 via TWYs C or B. If LVP in operation, aircraft will vacate via E.
- After vacating the runway, ATC will not provide parking position number for the west apron parking stands. Instruction for the **east apron stands** shall be: **“C/S, taxi via \_\_\_ and \_\_\_ to stand E\_”**. In the real life aircraft would be guided by the follow-me car to their parking position. Pilots shall report on stand only when on the east apron.

## Split Airport (LDSP)

### Runway

05/23 MAG BRG 050°/230°  
dimensions 2550 m x 45 m

05 TORA TWY A 1635 m

23 TORA TWY B 1580 m

- RWY 05 is equipped with CAT I ILS. Special circle-to-land procedure for RWY 23.
- **HIRO** (High intensity runway operations) in effect – minimize RWY occupancy times.

### ATS communication facilities

LDSP APP	Split Radar	120.875	
LDSP TWR	Split Tower	124.675	Croatian: Split Toranj
ATIS	Split ATIS	125.300	

### Departure

- All parking positions are taxi-in and taxi-out. Pushback is not required.
- Pilots will be instructed to “**Backtrack and line-up RWY 05 via A**” or “**Backtrack and line-up RWY 23 via B**” after taxi clearance, unless the pilot requests or confirms that he/she is able to perform an intersection departure (usually only light aircraft).
- ATC operates on the basis that each aircraft, when instructed to backtrack and line-up, is ready for immediate departure.
- Initial climb for SIDs in Split is NOT specified. TWR shall issue the initial climb clearance of **FL150** for RWY 05 departure and **4000 ft** for RWY 23 departure (internal agreement – TWR and APP; due to RWY 23 arrivals, advise pilots departing RWY 23 to the north to turn right after 2000 ft), unless otherwise coordinated with LDSP APP.
- After departure pilots need to be instructed to contact LDSP APP.
- Aircraft can only perform traffic circuit on the SE side of the airport due to terrain (right-hand traffic circuit RWY 05 or left-hand traffic circuit RWY 23).
- **NOTE:** Only 2 (two) VFR aircraft can perform traffic circuit training flights simultaneously inside Split CTR.
- VFR flights leaving CTR will leave via the published VFR reporting points.

### Arrival

- Arriving aircraft will be vectored in order to intercept the ILS for RWY 05 or the inbound CRS for VOR-B approach RWY 23. If visual approach is accepted by the pilot, vectoring will be provided until airfield is in sight. STARs: OKLAX3C, OKLAX2D, TORPO3F, TORPO1B, HUM1B, SPL1B can be used to the fullest extent if desired by the ATC.
- If RWY 05 is the arrival runway, aircraft can be instructed to direct to DVN (Drvenik NDB, frequency 418) – be levelled 2500 ft overhead for the final vector, or to SPL (Split VOR, frequency 115.7) – be levelled 5000 ft overhead for the prescribed ILS procedure or for vectoring.
- Glideslope intercept altitude for ILS 05 is 2800 ft. Descent instructions need to be given with regard to the published MRVA chart. Aircraft can be instructed to descend either to 2500 ft (if shorter approach is desired) or to 3000 ft.

- RWY 23 **cannot** be used as the arrival runway during night.
- ILS Z approach for RWY 05 is the primary procedure to be used (with ILS Y being the backup procedure).
- If RWY 23 is the arrival runway and VOR-B approach is in use, the following procedure applies: aircraft will be vectored to OSGOL, RILNO at 4000 ft or directly to LASUL to be levelled 2500 ft at LASUL (pay attention to the MRVA chart). If vectored via OSGOL or RILNO at 4000 ft the following instruction will be given: **“Descend 2500 ft, cleared VOR-B approach RWY 23 via OSGOL/RILNO, report established on inbound radial”**. If vectored via LASUL (2500 ft overhead) the following instruction will be given: **“Cleared VOR-B approach RWY 23, report established on inbound radial”**. When the aircraft is established on the inbound radial the ATC has the option to ask the pilot whether he/she has the RWY in sight. If they do have the RWY in sight before reaching DME 5.0 from SPL (FAF), the VOR-B procedure could be cancelled and the visual approach via RORKA could be executed (requires ATC approval, see procedure below). Then, the aircraft shall be transferred to LDSP TWR. In case the RWY is not in sight or visual approach is not desired, LDSP APP will transfer the aircraft to TWR when established on the inbound radial.
- If visual approach for RWY 23 is more desired, VOR-B approach will not be executed. Aircraft will be vectored to OSGOL, RILNO or LASUL at 4000 ft. When visual contact with the airfield is established, aircraft will be instructed to descend to 2500 ft and thereafter cleared for the visual approach via RORKA (visual reporting point – it is **not** in the navigation database) using the following clearance: **“Cleared visual approach RWY 23 via RORKA, report before turning to final (or report downwind)”**. Then, the aircraft shall be transferred to LDSP TWR.
- HIRO operation RWY 05 – aircraft shall vacate the RWY via TWY B.
- HIRO operation RWY 23 – aircraft shall vacate the RWY via TWY A.
- If the aircraft has passed the designated TWY, the pilot should make a 180° turn on the RWY (before reaching the turning bay) and vacate the RWY without delay.
- If a pilot of an arriving aircraft needs full RWY length, he/she must notify ATC as soon as possible.
- After vacating the runway, ATC will not provide parking position number. In the real life aircraft would be guided by the follow-me car to their parking position. **Do not** request pilots to **“report on blocks”**.

## Water Airports Resnik (LDSR) and Port Split (LDST)

- Airports are exclusively VFR.
- Located inside Split CTR. Two way radio communication with LDSP TWR (departures and arrivals) and LDSP APP (arrivals outside of LDSP CTR) is required.
- Water airports do not have ATS provider on the ground (water). Port of Split Authority is responsible for the movement of the aircraft when on ground (water). Departure clearance is required for the airspace above the aerodrome.
- For further information consult VFR Manual Croatia.
- Landing clearance shall be issued in the following format: **“Cleared to land direction \_\_\_ (05, 23, etc.), wind \_\_\_/\_\_\_, report on ground”**.

## Dubrovnik Airport (LDDU)

### Runway

12/30 MAG BRG 115°/295°  
dimensions 3300 m x 45 m

12 TORA TWY B 2270 m  
TWY C 1800 m  
TWY D 1350 m

30 TORA TWY E 2400 m  
TWY D 1780 m  
TWY C 1340 m

- RWY 12 is equipped with CAT I ILS. VOR-A and circle-to-land procedure RWY30.
- **Preferential RWY 12**

### ATS communication facilities

LDDU APP	Dubrovnik Radar	123.600	
LDDU TWR	Dubrovnik Tower	129.500	Croatian: Dubrovnik Toranj

### Departure

- All parking positions (except 1A, 16A and 19A) are taxi-in and push-out – which means that pushback is required. Parking positions 1-10 and 15-20 are taxi-out if one of the adjacent stand is not occupied. Standard pushback instruction shall be: **“Start-up and pushback approved RWY \_\_, QNH \_\_”**.
- If RWY 12 is departure runway, the main holding point is A. Holding points B and C can be used for VFR flights (light aircraft) only if the pilot accepts intersection departure.
- If RWY 30 is departure runway, aircraft will be instructed to **“Taxi via I to holding point E RWY 30, (backtrack and line-up RWY 30)”**, unless the pilot requests or confirms that he/she is able to perform an intersection departure. Holding point D can be used for VFR flights only.
- Initial climb for SIDs in Dubrovnik is NOT specified. TWR shall issue the initial climb clearance of **FL150** (internal agreement between TWR and APP) unless otherwise coordinated with LDDU APP.
- Departure information shall be given, when requested by pilots, instead of the ATIS (for all controlled airports in Croatia). Departure information format is as follows: **“Departure RWY \_\_, wind \_\_/\_\_, QNH \_\_, temp \_\_, dew point \_\_, visibility or RVR \_\_, time \_\_”**.
- After departure pilots need to be instructed to contact LDDU APP.
- Aircraft can only perform traffic circuit on the S side of the airport due to terrain (right-hand traffic circuit RWY 12 or left-hand traffic circuit RWY 30).
- **NOTE:** Only 2 (two) VFR aircraft can perform traffic circuit training flights simultaneously inside Dubrovnik CTR.
- VFR flights leaving CTR will leave via the published VFR reporting points.

## Arrival

- Runway 12 is preferential in LDDU. Most common approach in use is ILS RWY 12.
- Aircraft can be vectored to intercept the localizer for RWY 12. In this case, aircraft can be instructed to descend to 5000 ft and cleared for the ILS when at least DME 15.0 from DBK VOR (115.4).
- Aircraft can be instructed to direct to KLP (Koločep NDB, frequency 318) and be levelled 4000 ft overhead in order to intercept the ILS.
- Aircraft can be cleared for NERRA7A arrival and thereafter cleared to intercept the ILS (pay attention to minimum procedure altitudes and the MRVA chart).
- Glideslope intercept altitude for ILS 12 is 4000 ft. Descent instructions need to be given with regard to the published MRVA chart. Exception for ILS interception is **5000 ft** when at least DME 15.0 from DBK VOR.
- In case RWY 30 is active for arrival, ATC has multiple choices: VOR-A approach, vectoring for visual approach RWY 30 or circling with prescribed tracks RWY 30. Priority should be given to the instrument approach (VOR-A) since it can be used during night.
- Circling with prescribed tracks RWY 30 cannot be used during night.
- Before executing circling approach RWY 30 aircraft must be cleared for instrument approach for RWY 12 (VOR, locator or LOC (GS out) approach) – refer to the procedure chart. Following phraseology applies (in this example LOC (GS out) approach is used): “**Cleared localizer glideslope out approach RWY 12, report RWY in sight**”. The pilot then descends to circling MDA (2170 ft for C and D category). When the RWY is in sight ATC instruction is: “**Cleared circling approach RWY 30, contact TWR on \_\_\_**” (if TWR is not online instruction for the pilot could be to report downwind RWY 30 instead of *contact TWR*).
- Aircraft will vacate RWY 12 via TWYs C, D or E. Aircraft will vacate RWY 30 via TWYs D, C or B.
- After vacating the runway, ATC will not provide parking position number. In the real life aircraft would be guided by the follow-me car to their parking position. **Do not** request pilots to “~~report on blocks~~”.

## Osijek Airport (LDOS)

### Runway

11/29 MAG BRG 107°/287°  
dimensions 2500 m x 45 m

11 TORA TWY A 1800 m  
TWY B 1500 m

29 TORA TWY B 1000 m  
TWY A 700 m

- RWY 29 is equipped with CAT I ILS.

### ATS communication facilities

LDOS APP	Osijek Approach	118.800	Croatian: Osijek Prilazna Kon.
LDOS TWR	Osijek Tower	118.800	Croatian: Osijek Toranj

- On the Network LDOS APP is the only position required. LDOS TWR is not used.

### Departure

- All parking positions are taxi-in and taxi-out. Pushback is not required.
- Aircraft will be instructed to backtrack and line-up RWY via A (RWY 11) or via B (RWY 29) unless the pilot requests or confirms that he/she is able to perform an intersection departure.
- **Procedural control** is used in Osijek. This means that a controller does not have a radar screen. You **cannot** radar identify the aircraft nor provide vectors.
- Initial climb for SIDs in Osijek is NOT specified. APP (TWR) shall issue the initial climb clearance of **FL110** (Osijek TMA upper limit), unless otherwise coordinated with LDZO ACC.
- After departure pilots will be advised to report when passing 9000 ft. After the pilot reports passing 9000 ft, a controller will transfer the aircraft to other respective frequency.
- VFR flights leaving CTR will leave via the published VFR reporting points.

### Arrival

- ILS Z and Y RWY 29 are temporarily suspended. ILS X RWY 29 is operational only for A and B category aircraft. – refer to the chart
- Arriving aircraft shall be cleared onto the STAR with the instruction “**Descend as published**”. If visual approach is desired, pilot shall be instructed to “**Report RWY in sight**”. When the RWY is in sight ATC will issue clearances accordingly (visual approach clearance, then landing clearance).
- If RWY 11 is the arrival runway, NDB Y RWY 11 approach via CE or visual approach are available. **Remember, you do not have the aircraft on the radar.** – refer to the chart
- After vacating, ATC will not provide parking position number.

## Zadar Airport (LDZD)

### Runway

04/22 MAG BRG 039°/219°  
dimensions 2000 m x 45 m

14/32 MAG BRG 133°/313°  
dimensions 2500 m x 45 m

- RWY 14 is equipped with CAT I ILS.
- TWYs B, C, D, E and F are closed to civil traffic. TWYs A and H are available only for aircraft code letter 'A' and 'B'. When landing RWY 32, ACFT greather than 'B' code letter, expect backtrack to vacate the RWY via TWY G.

### ATS communication facilities

LDZD APP	Zadar Radar	128.525	
LDZD TWR	Zadar Tower	123.700	Croatian: Zadar Toranj

### Departure

- All parking positions are taxi-in and taxi-out. Pushback is not required.
- Usual departure runways are RWY 32 (for all aircraft) and RWY 22 (light aircraft, DH8D) due to shorter taxi times (backtrack is not required).
- Initial climb for SIDs in Zadar is NOT specified. TWR shall issue the initial climb clearance of **8000 ft** (internal agreement between TWR and APP), unless otherwise coordinated with LDZD APP.
- After departure pilots need to be instructed to contact LDZD APP.
- VFR flights leaving CTR will leave via the published VFR reporting points.

### Arrival

- RWY 14 is equipped with CAT I ILS. Glideslope intercept altitude is 2300 ft. Aircraft can be vectored to LUKAV (levelled at 6000 ft overhead) and then descended to the approach altitude and cleared for ILS approach. Another option is to vector the aircraft closer to the airport in order to intercept the ILS (not closer than DME 10.0 of ZDA (Zadar VOR, frequency 108.6).
- Descent instructions need to be given with regard to the published MRVA chart.
- For all other approaches consult respective charts.
- Aircraft must vacate RWY 14 via TWY G only.
- After vacating the runway, ATC will not provide parking position number. In the real life aircraft would be guided by the follow-me car to their parking position. **Do not** request pilots to "~~report on blocks~~".

## Pula Airport (LDPL)

### Runway

09/27 MAG BRG 085°/265°  
dimensions 2946 m x 45 m

09 TORA TWY C 1692 m

27 TORA TWY D 1992 m

TWY E 2491 m

- RWY 27 is equipped with CAT I ILS.

### ATS communication facilities

LDPL APP	Pula Radar	124.600	
LDPL TWR	Pula Tower	132.000	Croatian: Pula Toranj
ATIS	Pula ATIS	129.150	

### Departure

- All parking positions are taxi-in and taxi-out. Pushback is not required.
- Most commonly used runway for departure is RWY 09 (due to wind).
- Initial climb for SIDs in Pula is NOT specified. TWR shall issue the initial climb clearance of **8000 ft** (internal agreement between TWR and APP), unless otherwise coordinated with LDPL APP.
- When departing from RWY 27 ATC will ask the pilot whether he/she is able for intersection departure or he/she requires backtrack from intersection E.
- After departure pilots need to be instructed to contact LDPL APP.
- VFR flights leaving CTR will leave via the published VFR reporting points.

### Arrival

- Arriving aircraft will be vectored for a straight-in VOR approach RWY 09 via PLA (Pula NDB, frequency 351.5) at 2300 ft.
- Glideslope intercept altitude for ILS 27 is 2800 ft. Descent instructions need to be given with regard to the published MRVA.
- If RWY 27 is the arrival runway and ILS RWY 27 is used ATC has multiple options: vector the aircraft via CRE (Cres NDB, frequency 433) at 4000 ft; vector via PUL (Pula VOR, frequency 111.25) at 3300 ft and then clear for ILS approach as published (with 45°/180°procedural turn at DME 8.2 from PUL); vector to intercept the ILS at 3000 ft at least DME 12.0 from PUL.
- **NOTE:** Arrival at Pula Water Aerodrome (LDPP; VFR only) is via the following points: S7 to LDPP at 1000 ft AGL (maintain flight path over the sea); W5 to Fažana to LDPP at 1000 ft AGL. – refer to VFR Manual Croatia.
- After vacating the runway, ATC will not provide parking position number. In the real life aircraft would be guided by the follow-me car to their parking position. **Do not** request pilots to “~~report on blocks~~”.

## Rijeka Airport (LDRI)

### Runway

14/32 MAG BRG 141°/321°  
dimensions 2500 m x 45 m

14 TORA TWY A 1800 m  
TWY B 1100 m

32 TORA TWY B 1400 m  
TWY A 700 m

- RWY 14 is equipped with CAT I ILS.

### ATS communication facilities

LDPL APP	Pula Radar	124.600	
LDRI TWR	Rijeka Tower	119.000	Croatian: Rijeka Toranj

- Rijeka TMA has been removed. **LDPL APP** provides (radar) services for arriving/departing traffic.

### Departure

- All parking positions are taxi-in and taxi-out. Pushback is not required.
- Aircraft will be instructed to backtrack and line-up RWY via A (RWY 14) or via B (RWY 32) unless the pilot requests or confirms that he/she is able to perform an intersection departure.
- Initial climb for SIDs in Rijeka is NOT specified. TWR shall issue the initial climb clearance of **8000 ft** (internal agreement between TWR and LDPL APP), unless otherwise coordinated with LDPL APP.
- After departure pilots need to be instructed to contact LDPL APP.
- VFR flights leaving CTR will leave via the published VFR reporting points.

### Arrival

- LDPL APP (Pula Radar) is responsible for all arrivals to LDRI. Use the MRVA chart provided for LDPL.
- When RWY 14 is the arrival runway prefer using ILS 14. Aircraft need to be either vectored or directed via STAR to BRZ (Breza NDB, frequency 400) to be levelled at 7000 ft overhead and when reaching BRZ cleared ILS approach as published (refer to the chart). Aircraft can be descended to 3000 ft and cleared for straight-in ILS approach via BRZ, **only** if the pilot has and can maintain visual reference.
- If RWY 32 is in use, vectoring for visual approach RWY 32 or VOR 32 as published can be used. If published procedure is used, aircraft needs to be levelled 6000 ft overhead RI (Rijeka NDB, frequency 289).
- After vacating the runway, ATC will not provide parking position number. In the real life aircraft would be guided by the follow-me car to their parking position. **Do not** request pilots to “report on blocks”.

## Brač Airport (LDSB)

### Runway

04/22 MAG BRG 032°/212°  
dimensions 1760 m x 30 m

04 TORA TWY A 550 m

22 TORA TWY A 1210 m

### ATS communication facilities

LDSP APP	Split Radar	120.875	
LDSB TWR	Brač Tower	118.025	Croatian: Brač Toranj

- Split Radar (LDSP APP) provides radar services for all arriving/departing traffic.

### Departure

- All parking positions are taxi-in and taxi-out. Pushback is not required.
- Aircraft will be instructed to backtrack and line-up RWY via A.
- Initial climb for SIDs in Brač is NOT specified. TWR shall issue the initial climb clearance of **4000 ft** (Brač CTR upper limit), unless otherwise coordinated with LDSP APP.
- After departure pilots need to be instructed to contact LDSP APP.
- VFR flights leaving CTR will leave via the published VFR reporting points.

### Arrival

- LDSP APP will provide vectors for visual approach. RWY 22 is usually used for arrivals. RWY 04 is preferred for departures (depending on the wind).
- Aircraft shall be vectored so as to avoid overflying LDSP (Split Airport). For flights arriving via SPL (Split VOR, frequency 115.7) provide vectors to the southeast before reaching SPL. Plan for the aircraft to be around 8000 ft overhead/abeam Split city. Refer to the MRVA chart for LDSP. After passing the mainland and when overhead Brač Channel descend the aircraft to 4000 ft, provide information on airport's position and, when in sight, clear the pilot for visual approach. Then transfer the aircraft to TWR.

After vacating the runway, ATC will not provide parking position number. In the real life aircraft would be guided by the follow-me car to their parking position. **Do not** request pilots to "~~report on blocks~~".

## Lošinj Airport (LDLO)

### Runway

02/20 MAG BRG 019°/199°  
 dimensions 900 m x 30 m

### ATS communication facilities

LDPL APP	Pula Radar	124.600	1000 ft AGL – FL115
LDLO TWR	Lošinj Tower	120.300	Croatian: Lošinj Toranj

- Pula Radar (LDPL APP) is responsible for all aircraft arriving/departing Lošinj from 1000 ft AGL to FL115. Aircraft shall maintain constant radio communication with active ATC station. Outside of Lošinj Airport operating hours (refer to NOTAM), Lošinj ATZ is active (G airspace) – pilots shall contact Pula Radar (or if unavailable, Zagreb LDZO\_CTR) no later than 5 minutes before entry into controlled airspace.

### Departure

- All parking positions are taxi-in and taxi-out. Pushback is not required.
- Aircraft will be instructed to taxi to the respective holding point (A if RWY 20 active, B if RWY 02 active). Instruction to backtrack and line-up shall be given in coordination with the pilot (if required).
- Initial climb for SIDs in Lošinj is NOT specified. TWR shall issue the initial climb clearance of **2000 ft** (Lošinj CTR upper limit), unless otherwise coordinated with LDPL APP.
- After departure pilots need to be instructed to contact LDPL APP if under LDLO TWR control.
- VFR flights leaving CTR will leave via the published VFR reporting points.

### Arrival

- LDPL APP will issue STAR for arriving IFR aircraft, unless visual approach is desired (in that case vectors can be provided). All STARs end at LOS (Lošinj NDB, frequency 429) where NDB-a approach can be carried out if desired. – refer to charts for LDLO
- Outside of Lošinj Tower operating hours, **only VFR aircraft are allowed** since Lošinj ATZ is classified as G airspace (**IFR flights are not permitted in G airspace in Croatia**). In this case, pilots shall be instructed to report 5 minutes before overflying VFR entry points for Lošinj ATZ, and, after the report is received, instructed to monitor UNICOM.

After vacating the runway, ATC will not provide parking position number. **Do not** request pilots to “~~report on blocks~~”.

Lošinj Airport can handle aircraft up to 27,000 kg MTOW (category A and B aircraft).

Runway 02/20 is a **non-instrument runway**.

If desired, you can treat this airport as uncontrolled during your controlling session.

## Zagreb ACC

### General

- Zagreb ACC (callsign: Zagreb Radar, LDZO\_CTR – do not confuse \_CTR (ATC position abbreviation for ACC on IVAO) with CTR (control zone, an airspace type)) is responsible for the airspace of the Republic of Croatia that is not included in TMAs or CTRs.
- On the Network, LDZO\_CTR is responsible for the entire Zagreb FIR and other delegated airspace if there are no ATC units connected in Croatia (APPs and TWRs).
- Zagreb FIR/UIR extends from ground to unlimited. Controlled airspace extends from 1000 ft AGL to FL660 (excluding CTRs) – this airspace is called Control Area (CTA).
- Classification of CTA is as follows: C – between FL115 and FL660; D – below FL115 to 1000 ft AGL. Airspace below 1000 ft AGL outside of CTRs is classified as G (uncontrolled airspace).

### Frequencies in Zagreb FIR (LDZO)

- Following frequencies are used in Zagreb FIR:

Login name	Callsign	Frequency	Remarks
LDZO_CTR	Zagreb Radar	135.800	
LDZO_FSS	Zagreb Information	135.050	VFR only, procedural
LDZA_APP	Zagreb Radar	120.700	
LDZA_TWR	Zagreb Tower	118.300	
LDZA_GND	Zagreb Ground	121.850	High peak
LDSP_APP	Split Radar	120.875	
LDSP_TWR	Split Tower	124.675	
LDDU_APP	Dubrovnik Radar	123.600	
LDDU_TWR	Dubrovnik Tower	129.500	
LDOS_APP (TWR)	Osijek Approach	118.800	Procedural
LDZD_APP	Zadar Radar	128.525	
LDZD_TWR	Zadar Tower	123.700	
LDPL_APP	Pula Radar	124.600	Respb arr/dep LDRI
LDPL_TWR	Pula Tower	132.000	
LDRI_TWR	Rijeka Tower	119.000	<i>Rijeka TMA removed</i>
LDSB_TWR	Brač Tower	118.025	
LDLO_TWR	Lošinj Tower	120.300	upon NOTAM
UNICOM	UNICOM	122.800	
Emergency	GUARD	121.500	

### Coordination with other ATS units

- For ATS units providing services within Zagreb FIR: Zagreb ACC can descend arriving aircraft to upper TMA vertical limit (transfer to APP usually done 2000 ft before reaching assigned level), unless otherwise coordinated with respective APPs. Transfer must be done before the aircraft reaches its final waypoint (most commonly STAR entry point).
- For ATS units providing services outside of Zagreb FIR: Consult with standing Letters of Agreement between divisions (FIRs) or coordinate with respective ATS unit.

## Delegated airspace

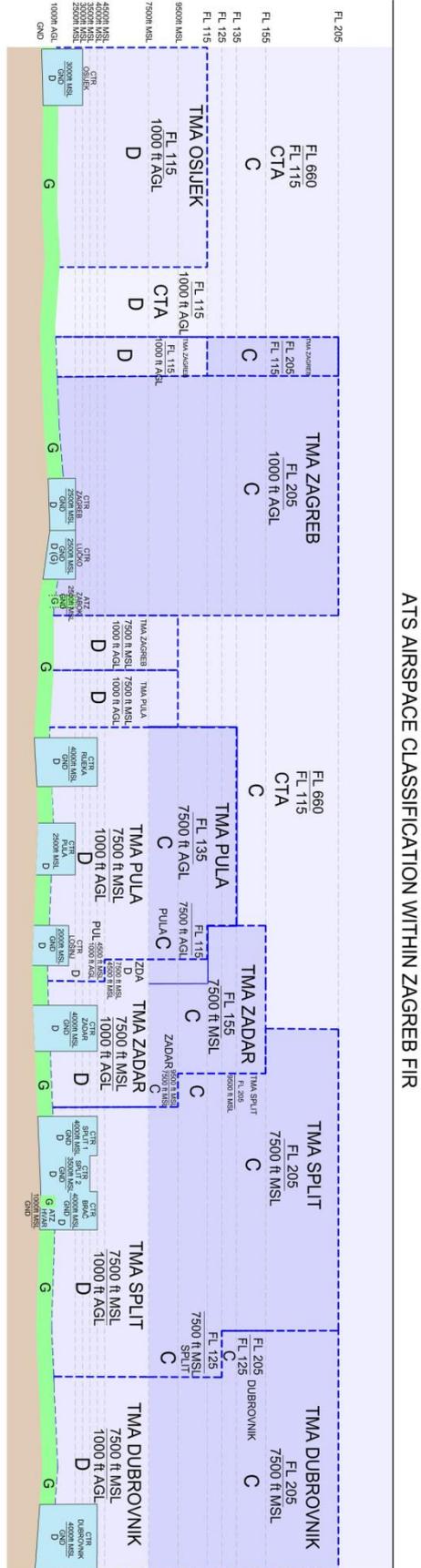
- Western part of Sarajevo FIR has been delegated to Zagreb ACC between 9500 ft MSL and FL325 west of the line AGLIB-ELTIB-Croatian border, and between FL325 and FL660 between the already mentioned line and west of the line GUBOK-DER-VRANA-DIXUM (see sector file depiction). Eastern part of Sarajevo FIR has been delegated to Beograd ATCC between FL325 and FL660.
- Due to lack of presence of Sarajevo Radar on the Network, the following agreement is in place between IVAO Croatia and IVAO Serbia. All transit flights passing through Sarajevo FIR are to be controlled from FL170 (being the upper limit of Sarajevo TMA) to FL660 respecting the delegation line (GUBOK-DER-VRANA-DIXUM).
- Airspace south of the line GISAM-BEVIS has been delegated to Brindisi ACC (LIBB) between FL325 and FL460.

## SEAFRA

- Cross-border FRA procedures (SEAFRA – South East Axis Free Route Airspace) are available H24 from FL325 up to FL660 in the airspace formed from airspaces of Zagreb FIR/UIR, Sarajevo FIR and Beograd FIR/UIR excluding areas where responsibility for the provision of ATS is delegated to ATS units other than Zagreb ACC or Beograd ATCC and including area where responsibility for the provision of ATS is delegated to Zagreb ACC.
- Internal agreement between IVAO Croatia and IVAO Serbia is in place regarding SEAFRA procedures. All aircraft flying inside SEAFRA airspace are to be given *direct to* instruction to the FIR exit point of the last FIR participating in the FRA program (e.g. aircraft entering through Zagreb FIR and exiting through Beograd FIR will be given the exit waypoint of Beograd FIR when contacting Zagreb ACC). – see **Appendix B**

Appendix A

- ATS airspace classification of Zagreb FIR





Beograd FIR FRA points

