Training program for S2 (TWR) rating

Introduction

This is the official Vatsim Scandinavia training program for students training for the TWR (S2) Rating. Each mentor is expected to take his student through these sessions. This is to make sure all students have been through the same core content in their training. The training is now based on multiple simulator sessions before starting to control live. The program will have a steady increase of traffic and difficulty. This will make it easier for the student to monitor the progress of the student as it is not based on how many pilots are showing up for the training.

The tower controller

A tower controller has responsibility for aircraft at an airport, in the airspace directly above and in the close vicinity of the airport. At large airports, the tower function could be split into several tower positions, which can be one for arrival and one for departure, as well as ground and delivery. Initial Tower controller training in VATSCA is performed at a regional airport and the tower position normally also covers the ground function at regional airports.
As a tower controller you issue IFR clearances, keep the aircraft separated while taxiing on taxiways and clear aircraft for take-off and landing on the active runway. You are also responsible for the traffic in the control zone including traffic circuits.
The tower works in close collaboration with the approach or enroute controller, whoever is responsible for the airspace above. At some airports, the tower controller also handles the approach control function.

Qualifications required to start training

In order to start practical Tower Controller training in VATSCA, a student must meet the following requirements:
- VATSIM, VATEUD and VATSCA member
- Tower Controller training request sent to and accepted by VATSCA training department
- Passed VATEUD theoretical ATSimTest at S1 level

Theoretical part

Intro session

A theoretical session covering the following:
1. Basic organisational awareness
    - VATSIM: VATEUR, VATEUD and VATSCA
    - Code of conduct:
    - Being helpful and respect pilots
    - Radar range settings

- ○ Remain at position when logged on as active controller
- ○ The role of supervisors, when should they be called
2. Supporting programs
   - ○ ATC booking via vroute
   - ○ ServInfo, VATSpy and Vroute
3. Controller radar client software
   - ○ Configuration files for country and airport
   - ○ Configuration to see airport
      - i. control zone (airspace)
      - ii. runway
      - iii. taxiways
      - iv. aprons and parking stands
   - ○ Interpret aircraft label:
      - i. Squawk: code, standby and mode-C
      - ii. Altitude: present (maintaining, climbing, descending)
      - iii. Cleared flight level (Temporary altitude)
      - iv. Scratchpad
      - v. Additional information depending on local setup
   - ○ Basic functions:
      - i. Zoom and pan the radar display
      - ii. Assign squawk code
      - iii. View aircraft flight plan
      - iv. Set cleared flight level (temporary altitude)
      - v. Keep departure list updated (ground status, clearance issued etc.)
      - vi. Enter info into scratchpad
      - vii. Enter controller information (text ATIS)
      - viii. Set up voice ATIS
      - ix. Use controller list to be aware of other controller online
      - x. Acquire METAR for own airport
   - ○ Communication:
      - i. Private chat with controllers and pilots
      - ii. Transmit to text-pilots on the ATC channel
      - iii. Request pilot on the frequency
      - iv. Transmit voice on the general ATC channel
      - v. Monitor another controllers frequency
      - vi. Supervisor call: .wallop is there a SUP online?

Practical part

The practical part of the training will consist of both simulator sessions and live training sessions.

These sessions will cover the following:

1. Preparations before logging in as active controller
   a. Login as observer, and coordinate with adjacent controllers, if considered necessary
   b. Acquire current METAR for own airport
   c. Choose active runway in use
   d. Enter controller and airport ATIS
2. Log in as active controller
   a. Valid position name
   b. Appropriate facility
   c. Rating
   d. Set appropriate radar range corresponding to position
   e. Log in with VATSIM ID, password and own name
   f. Select voice server and voice channel
   g. Make adjacent controllers aware that the position is active and operational, by transmitting on the controller coordination channel (ATC) if not in direct contact otherwise (TS, Skype, ..)
3. Log out as active controller
   a. Coordinate closing with adjacent controllers above
   b. Indicate position is going to close
   c. use .break function
   d. transmit on the controller coordination channel
   e. Transfer pilots on the frequency to other controller or unicom
   f. Log out from VATSIM
4. General ATC procedures for Tower Controller
   a. Spell out phonetic alphabet (Alpha, Bravo, etc.)
   b. Weather information
      i. For departing aircraft, give departure information where not available in ATIS: RWY in use, wind, RVR (if applicable), temperature (for turbine engine aircraft), QNH, runway conditions (if applicable)
      ii. For arriving aircraft, give RWY in use and intended approach procedure, read MET REPORT and transition level, unless the information is available by ATIS or already transmitted by another controller.
   c. Standard IFR departure.
      i. Review flightplan (even/odd FL, routing) and assign SID.
      ii. Spell out aircraft callsigns and destination ICAO codes.
      iii. Assign squawk code and set cleared flight level (temporary altitude)
      iv. Deliver departure clearance to pilot (SID and squawk code)
      v. Approve start-up and push-back.
      vi. Taxi clearance to active runway for departure.
      vii. Line-up if aircraft needs to hold due other departing traffic or just landed

        traffic.

      viii. Take-off clearance (including wind information if different from previously transmitted wind information)

       ix. Transfer to controller above

       x. Transfer to unicom

d. Non-Standard IFR departure

       i. Coordinate non-standard departure with controller above

      ii. Coordinated heading and initial altitude for further radar vectoring during departure

     iii. Direct to first waypoint in flightplan

e. Standard IFR arrival

       i. Continue approach (if landing clearance can not be given due traffic)

      ii. Landing clearance and wind information

     iii. Taxi clearance to appropriate stand via taxiways

     iv. Go-around, (ATC or pilot initiated), coordinate with controller above.

f. VFR departure leaving Control Zone

       i. Taxi to holding point before active rwy

      ii. VFR clearance using control zone VFR exit points

g. VFR arrival

       i. Clear into the circuit

      ii. Landing time and taxi to general aviation area

h. VFR traffic circuit.

       i. Clearance for traffic circuit

      ii. Touch-and-go, stop-and-go, low approach, go-around

i. Separation

       i. Separate aircraft on ground

      ii. Separate aircraft departing from same runway

     iii. Separate arriving and departing aircraft

     iv. Conditional clearances

      v. Separate aircraft in the control zone (and TMA sector if applicable) according to airspace classification

j. Coordination

       i. Effective coordination with other controllers when required

      ii. E.g. direct routing into other controllers sector

k. For piston engines:

       i. Taxi to run-up area

      ii. Rare on Vatsim, but in real life most small AC will want some minutes for engine run-up, and some may want to simulate this on Vatsim as well

     iii. Some airports have their own run-up areas while other use a holding point where the aircraft is not in the way for other departures.

l. Emergencies

i.   Handling emergencies
ii. VATSIM CoC regarding emergencies

The simulator training program

The first practical sessions will be in the simulator. The simulator will offer the student a steady increase of traffic level, to allow a steady learning-curve. All exercises have overlying/adjacent sectors online, and takes place on a single runway airport.

Simulator exercises

101 IFR DEPARTURES

The exercise starts with a number of departing aircraft at the gates.
Subjects covered:

- Provide IFR clearances, using SID or vector departure.
- Start-up
- Push-back
- Taxi
- Takeoff
- Runway change halfway through the exercise

102 IFR DEPARTURES AND ARRIVALS

- Both inbound and outbound IFR
- Multiple aircraft on final, (Continue approach, number two...)
- Separate aircraft taxiing in from aircraft taxiing out

103 VFR TRAFFIC

- VFR clearances (circuit, traffic leaving CTR)
- VFR in the circuit
- Clearing inbound VFR into the circuit.
- Phraseology in the local language (when possible)
- Helicopter traffic

104 FINAL SIMULATOR SESSION

- Exercise combining IFR arrivals, IFR departures and VFR traffic.

105 OPTIONAL: BASIC APPROACH CONTROL SESSION

- Introduction to approach control
- Vertical separation
- Handling up to 3 aircraft simultaneously in the TMA
- Vectoring to approach (1 aircraft)
- Issuing approach clearance (ILS, VOR, NDB, straight-in and full procedure, visual approach)

106 AFIS Introduction

- Short introduction to the service and what the tasks are.
- 2 departures
- 2 arrivals
- 1 VFR operating in the vicinity

Online training program

After the simulator sessions, a minimum of two online sessions are required. If the mentor thinks the student has reached the desired level, the training is finished and he will have his checkout as soon as possible. If combined rating/major airport endorsement training is applied, and the mentor evaluates, that the student is able to handle one combined rating/MA CPT, the student can continue directly to an Major Airport endorsement training program with the same mentor.
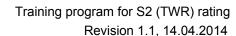
Advanced/Optional

The following items might be included, however, they are regarded as advanced and/or optional at this level.

- Controller radar client software
  - Configuration files: automatic voice ATIS for ES and text aliases file
  - Modify text aliases (macro commands)
- Communication
  - Transmit on ATC channel to text-pilots using "text aliases" (macro commands)
  - Use intercom to coordinate with adjacent controllers
- Basic approach control skills (only applicable in Sweden at the moment, see the section "OPTIONAL: BASIC APPROACH CONTROL SESSION" above for details)

Examination

Tower Controller (S2) check-out:
Tower position at regional airport
Time frame: 60 to 90 minutes

Supporting ATC: on approach or area/enroute sector above, no ground
Required performance to pass:

- Log on as active Tower Controller
- Communicate with pilots and controllers online
- Respond to pilot calls and coordination requests from adjacent controllers
- Function as a Tower controller at a regional airport during normal traffic conditions
- Handle at least one IFR departure and one IFR arrival satisfactory
- Handle at least one VFR departure and one VFR arrival satisfactory
- Control at least 2 aircraft on the frequency simultaneously
- In total, handle 8 movements during the examination.
- Coordinate runway in use and non-standard departure with approach or area/enroute controller above
- Keep aircraft separated on taxiways and runway
- Separate aircraft taking off from and landing on the same runway
- Separate aircraft in the control zone
- Use correct English phraseology and phraseology in local language if applicable

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