Delta Virtual Airlines

Air Traffic Control Guide for Pilots

First Edition

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NOT FOR REAL WORLD AVIATION USE

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ATC for Virtual Pilots

Welcome to the world of virtual ATC communications. This may be the most challenging part of your virtual aviation training. The purpose of this guide is to help you understand the communications used between you the pilot and the virtual Air Traffic Control (ATC) on VATSIM. This guide will show you the typical interactions that you can expect as you fly through the virtual airspace with special emphasis on radio communications.

Based on real world ATC and following the FAA Order J0 71108.65S dated February 14, 2008, you will learn about the VATUSA ATC system and how it works.

The VATUSA air traffic control system is made up of a vast network of people and equipment that provides the safe operation of commercial and private aircraft, coordinating the movement of air traffic to make certain that planes stay a safe distance apart. Air Traffic Control can control airport traffic through designated airspaces, while others may work airport arrivals and departures or center positions.

Radio phraseology – the terminology used by the controller is highly standardized. Pilots are allowed much more liberty in the words they use but if you make an effort to repeat the directions of the controller, you will quickly develop a feel of what good, professional and effective radio communications sounds like. This guide contains scripted scenarios of various flights that you can read, learn and practice during your flights.

If you spot a typo or notice something that doesn't seem correct, let us know. We sincerely hope you enjoy this course and it helped you to continue your virtual aviation education.

Happy Flying!

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Basic Information

Suggestions on how to use this guide:

1. All scenarios, unless otherwise noted, are based on the Salt Lake City International Airport (KSLC) scenery by Gary Widup. This scenery is available at http://www.avsim.com/ and should be installed before you begin.
2. You will have your aircraft parked on the ramp in front of the Delta Virtual Airlines Flight Academy hangar, west of taxiway G (Golf) at U (Uniform).
3. Before proceeding further, it is recommended that you have the following charts which are available on http://www.myairplane.com/ and chart, route and airport information at http://www.SkyVector.com/

    a. Salt Lake City International - KSLC
        1. Airport Diagram
        2. VFR Departure/Arrival procedures for KSLC (Class B Airspace)
        3. VFR Terminal Chart for Class B Airspace
        4. ILS Approach for North Ops (Rwy 34R)
        5. ILS Approach for South Ops (Rwy 16L)
    b. Tooele Valley Airport - KTVY
        1. Airport Diagram
        2. NDB – Rwy 17
    c. Logan-Cache Airport - KLGU
        1. Airport Diagram
        2. ILS or LOC/DME Rwy 17
        3. RNAV (GPS) Rwy 17
    d. Provo Municipal Airport
        1. Airport Diagram
        2. ILS or LOC/DME Rwy 13
        3. VOR/DME Rwy 13
        4. VOR Rwy 13
    e. Brigham City Airport – KBMC
        1. Airport Diagram
        2. NDB Rwy 34
    f. Ogden-Hinckley Airport
        1. Airport Diagram
        2. ILS or LOC/DME Rwy 3
    g. Twin Falls/Joslin Field-Magic Valley Regional Airport - KTWF
        1. Airport Diagram
        2. SNAKO One Departure
        3. ILS Rwy 25
    h. Pocatello Regional Airport – KPIH
        1. Airport Diagram
        2. ILS or LOC Rwy 21
        3. VOR or TACAN Rwy 3

Air Traffic Control

What is the purpose of Air Traffic Control? As defined in FAA Order 7110.65S, Air Traffic Control, Section 2-1-1, ATC Service,

> "The primary purpose of the ATC system is to prevent a collision between aircraft operating in the system and to organize and expedite the flow of traffic."

As you can see, the separation of traffic is the **#1** priority and takes precedence over every thing else. In general, traffic is worked on a first come, first served basis with the declining order of preference being IFR, Special VFR (SVFR) then VFR.

When you, as the pilot, contact an air traffic controller, you should use a basic format of **4 W's-**"**Who** they are - **Who** you are - **Where** you are - **What** you want to do". This will provide enough basic information for the controller to act without the need to play 20 Questions. Make sure you tell them **Where** you are (Which airport you are located at) in your initial call. Here are a couple of examples of an initial call by a pilot.

> Provo Tower, DELTA 2784, 10 miles west, inbound for landing with information Tango
>
> ***OR***
>
> Salt Lake Approach DELTA 2784, 30 miles south of Fairfield VOR, request entry Class B, VFR to Salt Lake International airport
>
> ***OR***
>
> Salt Lake Approach, DELTA 2784, Delta Flight Academy VFR Training Flight, on the ground at Provo, request VFR to Salt Lake City International

New VFR/IFR pilots often have difficulty copying and reading back a clearance. There is a simple and reliable way to overcome this problem as follows: The acronym "**C.R.A.F.T**" is often used to describe the various components of an ATC:

a. "**C**" refers to the authorized clearance – Cleared to KDAB
b. "**R**" refers to the cleared route – via OHM transition – then as filed
c. "**A**" refers to the initial and final cruise altitude – climb and maintain 7000 ft – expect final altitude 10 minutes after departure
d. "**F**" refers to frequency – contact departure control on 120.52
e. "**T**" refers to transponder code – Squawk 6320

Knowing the order of "**C.R.A.F.T**" formatted clearance, the pilot can write out the expected clearance beforehand using shorthand notations and blank spaces such as:

> Delta 2253 cleared to (airport)via (departure transition) then as filed, climb/maintain (transition altitude) expect (final altitude) 10 minutes after departure, departure frequency ( ) Squawk ( )

ATC Position Responsibilities

From the time you enter the aircraft at your departure airport to the time you shut it down at your destination, you will deal with a variety of controllers whose responsibilities can vary widely from one to the next. In an effort to better understand what each person does, we will provide a definition of each control function or position you will deal with. We will address these in the normal sequence of interaction starting with Clearance Delivery and working through the process of Ground Control, Tower, Departure, Center, Approach, Tower and Ground Control.

We will use a typical IFR flight from Salt Lake City International airport to Pocatello, Idaho using VATUSA ATC.

Clearance Delivery

Depending upon the facility, in the real world, the Clearance Delivery position may be located in the Tower, Radar facility or even a Ramp control facility. Because of this, "Clearance" is **not** considered a control position. In other words, Clearance Delivery has **no** separation responsibilities. The two primary functions are to "Process and forward flight plan information" and "Issue clearances and ensure accuracy of the pilot read back" of his clearance. This position is usually referred to as "CLEARANCE". Normal communication for an IFR or VFR flight will go something like this:

> **Pilot:** Salt Lake Clearance, DELTA 2784, Clearance on request to Pocatello.
>
> **Controller:** DELTA 2784, Salt Lake Clearance, clearance on request
>
> *After the controller validates your flight plan information…*
>
> **Controller:** DELTA 2784, Clearance available, advise ready to copy
>
> **Pilot:** Clearance, DELTA 2784 Ready to copy
>
> *Notice that after initial contact is made, the ATC facility does not identify itself and the pilot can also drop the facility name, in this case "Salt Lake"*
>
> **Controller:** DELTA 2784 is cleared to Pocatello via the Salt Lake Nine Departure then as filed. Climb and maintain 10,000 feet, expect Flight Level 210 one zero minutes after departure. Departure frequency Salt Lake Departure 124.30, squawk 0510.
>
> **Pilot:** DELTA 2784 is cleared to Pocatello as filed via the Salt Lake Nine Departure. Climb/maintain 10,000 ft, expect FL210 10 minutes after departure, Salt Lake Departure on 124.30 squawk 0510
>
> ***Note:*** *Some locations use abbreviated read back procedures. For example, Salt Lake may ask for only the squawk read back unless there are questions especially during fly in events.*
>
> *Example:* **Pilot:** DELTA 2784 Squawk 0510.

Controller: DELTA 2784, read back correct, contact Salt Lake Ground 121.90

A request to depart VFR into Class B (Bravo) airspace will sound like this.

Pilot: Salt Lake Clearance, DELTA 2784, Request VFR departure to the north at 11,500 feet.

Controller: DELTA 2784, Salt Lake Clearance, clearance on request

After the controller validates your flight plan information…

Controller: DELTA 2784, Clearance available, advise when ready to copy

Pilot: Clearance, DELTA 2784 Ready to copy

Controller: DELTA 2784 is cleared VFR to the north at or below 6,000 MSL via the I-15 transition. Departure frequency 124.30, squawk 0510.

Pilot: DELTA 2784 cleared VFR to the north at or below 6,000 MSL via the I-15 transition. Departure frequency 124.30, squawk 0510

Controller: DELTA 2784, read back correct, contact Salt Lake Ground 133.65.

Ground Control

Ground Control is the first position you will encounter that has **actual control function**. This controller's area of responsibility is known as the movement area. The movement area is all taxiways, not including the runways. In the real world his movement area does not include the ramp and gate areas.

Whether you are departing IFR or VFR typical communications with Ground will be the same. Ground Control will also give you approval for engine start and push back. Make sure that you listen to the instructions given to you. If you hear the instruction "TAXI TO…", you are cleared to cross any taxiway or runway you may encounter up to the departure runway if outbound, or if inbound, the parking area. If the controller needs you to hold short of a runway or taxiway, the instruction will start with "Runway XX, taxi via…" and end with a "Hold Short Runway/taxiway". In this situation, you ***are not*** cleared to cross any other runways until specifically cleared to do so. Here are examples of both situations.

Pilot: Salt Lake Ground, DELTA 2784, Delta Flight Academy ramp ready push and start with information Alpha.

Note: Per the checklist you should have already listened to the ATIS and made a note of the ATIS code. Inform the ground controller of this on initial contact.

Controller: DELTA 2784, Salt Lake Ground, push and start at pilot's discretion, advise this frequency when ready for taxi

Pilot: Push and start at pilot's discretion and call when ready for taxi, DELTA 2784.

The term "WHEN READY FOR" means precisely that when you are ready in all aspects, with the exception of certain lights, to taxi the aircraft. In this situation, complete your checklist up through the "After Engine Start" checklist and then call for taxi clearance.

Pilot: Ground, DELTA 2784 taxi.

Controller: DELTA 2784 taxi to Rwy 34R via Golf, Echo, Hotel, Hotel 1

Pilot: DELTA 2784 taxi to Rwy 34R via Golf, Echo, Hotel, Hotel 1

Note: *In this case the controller has cleared you to taxi up to and hold short of runway 34R by entering taxiway Golf, proceeding southbound turning left on taxiway Echo and then right on taxiway Hotel to Hotel 1. Stop the aircraft at the hold short line for runway 34R.*
If the controller wanted you to hold short of a runway or taxiway the instruction would sound like this (same situation). Pay particular attention to the different way the controller issues the taxi clearance.

Pilot: Ground, DELTA 2784 taxi.

Controller: DELTA 2784 Rwy 34R taxi via Golf, Echo, Hotel, Hotel 1, hold short taxiway Hotel at Echo for southbound 737.

Pilot: DELTA 2784 taxi to Rwy 34R via Golf, Echo, Hotel, Hotel 1, hold short taxiway Hotel at Echo for southbound 737, have 737.

At some point when you are taxiing, the ground controller will determine he no longer needs to retain communications with you and will issue instructions for you to contact the tower controller.

Controller: DELTA 2784, Contact Tower 119.05.

Pilot: Tower 119.05, DELTA 2784.

After landing, the same procedures will be used to get you to the gate or ramp area. Generally when parallel runway operations are in use, the tower controller will keep you on his frequency until you are cleared to cross the inner runway. After landing you will be instructed to turn off the runway and eventually be instructed to contact ground. The ground controller will then issue the necessary instructions in the same format we have just seen to get you to your gate.

Tower

The tower controller is directly responsible for separating aircraft on the active runway(s) and in the air in the immediate vicinity of the airport. Depending on the airport and traffic, there may be more than one tower controller, each responsible for their own runway(s).

Taxi into Position and Hold

Many times you will be instructed to "**Taxi into Position and Hold**". Recent FAA actions have clarified the intent and added some restrictions to these procedures. Because of this, let's take a few moments to talk about what is expected of you as the pilot. It is used as a method to expedite the flow of traffic. The primary application is to move a departure onto the runway immediately after an arrival has landed or there is traffic to another runway that precludes the immediate issuance of a takeoff clearance. The new FAA guidance directs the controller to inform the departure aircraft of the reason for the hold except when the reason is an arrival on the same runway that is clearly visible to the pilot. Communication with the tower will sound like this.

> **Controller:** DELTA 2784 Runway 34R Position and Hold, awaiting IFR Release
>
> **Pilot:** Position and hold, DELTA 2784

As the pilot, you are expected to enter the runway, align for takeoff and make the aircraft ready for takeoff. Turn lights on, turn transponder on, etc and be ready to go. Once the controller issues your takeoff clearance, do not delay on the runway. The controller is expecting you to be rolling within only a few seconds of when the clearance is issued and acknowledged. Also, there have been restrictions put in place that prohibits the controller from issuing a landing clearance to an aircraft landing on your runway when another aircraft is holding in position. This will be discussed further in the Arrivals section below.

Departures The tower controller will also normally issue your initial heading to fly and altitude to maintain since he has the most up to date information about other traffic in the area and is in close coordination with the departure controller.

> **Pilot:** Salt Lake Tower, DELTA 2784 ready for takeoff runway 34R.
>
> **Controller:** DELTA 2784, fly runway heading after departure, Winds 345 @ 10, runway 34R, cleared for takeoff.
>
> **Pilot:** runway heading, cleared for takeoff runway 34R

At this point you would enter the runway, line up on the centerline and take off. The tower controller may also give you information about other traffic, instructions to fly the Standard Instrument Departure (SID) if IFR, VFR transition or wake turbulence advisories.

As a pilot, listen and understand what you've been told and provide a clear, concise read back.

After you take off within ½ mile of the runway, tower will instruct you to contact Departure. If you have been issued a clearance, you would have been given the frequency. Tower will say "Contact Departure 124.3". Examples:

Controller: DELTA 2784, Contact Departure, 124.3.

Pilot: Contact Departure, DELTA 2784

Arrivals The tower controller will normally issue all landing clearances as well as instructions for exiting the runway. Normally, you will be sequenced for landing by the approach controller, handed off and instructed to contact tower normally between 5 and 10 miles from the runway. Because of recent changes to the 'Taxi into Position and Hold' procedures you may not be cleared to land immediately, instead you may be told to "Continue" along with a reason why. This will be followed with a landing clearance as soon as practical. Examples:

Pilot: Salt Lake tower, DELTA 2784, 6 mile final runway 34R

Note: *If you are planning to do anything other than a full stop landing, inform the controller on initial contact.*

Pilot: Salt Lake tower, DELTA 2784 6 mile final runway 34R, touch and go

Controller: DELTA 2784 Salt Lake tower Runway 34R cleared for the option

Note: *See the VFR Pattern section for examples of other landing clearances and an explanation of what the "Option" landing is.*

Pilot: Cleared for the option Runway 34R, DELTA 2784

Or when Taxi into Position and Hold is being applied…

Controller: DELTA 2784 Runway 34R continue, B-727 holding in position.

At the appropriate time this will be followed with a landing clearance.

Controller: DELTA 2784 Runway 34R cleared to land

Pilot: Cleared to land Runway 34R, DELTA 2784

After landing you will be instructed by the tower controller to exit the runway and when to contact ground.

Controller: DELTA 2784, turn left when able, squawk standby, contact ground 133.65.

Note: *If the ground control frequency starts with 121, the controller has the option of issuing only the decimal value of the frequency. Example:*

Controller: DELTA 2784, turn left when able, squawk standby, contact ground point 8 (121.8).

Pilot: Left turn when able, ground 121.8, DELTA 2784

Departure, Approach and Center Control

The departure controller is the first of the "radar" controllers you will deal with. Others are the "Center" and "Approach" controllers. The departure and arrival controllers are often referred as working in the terminal environment. Organizationally, you will find the terminal facilities control traffic in the vicinity of key airports and at relatively low altitude, usually less than 15,000 feet, and are often named for the primary airport they serve. Although the primary purpose is to serve the main airport, they also have the same responsibilities to any other airport that lies within the confines of their airspace. Salt Lake Approach, for example, provides terminal radar services for Salt Lake International Airport. At the same time, and with the same priority, they provide the same services to other airports like Provo, Ogden, Salt Lake Muni, Bountiful Hill AFB and others. Many of the functions can, and often, are performed by the same controller, especially in the VATUSA world. Here you will see a Center controller performing all three functions at the same time. The basic rules are all the same and therefore the difference is the intent of the controller's activities. As the names imply, the Departure controller is concerned with getting aircraft established on its route and climbed as high as possible and handed off to the Center controller. The Center controller will clear the aircraft up to its filed altitude and provide flight monitoring and separation for the enroute phase of flight. As the aircraft nears its destination or is leaving his airspace, the Center controller will either give arrival instructions to get the aircraft back down to the terminal area or hand them over to another center controller.

The Arrival controller is responsible for getting the aircraft to the airport. He can use either instrument or visual procedures to do this. The phraseology used by these controllers is the same and will be address in this section together. In this scenario, we will continue our flight from the Tower instruction to contact Departure just after takeoff. The remainder will be a flight from Salt Lake City International to Pocatello Idaho.

Pilot: Salt Lake Departure, DELTA 2784 passing 5,000 feet for 6,000, runway heading.

Controller: DELTA 2784, Salt Lake Departure, Radar contact, climb and maintain 10,000 ft.

As the flight progresses, you will be given other instructions. Those that follow here are typical of what you can expect. Remember, listen closely, read back the instructions and comply with them in a timely manner. If you are not sure of something, ask.

Controller: DELTA 2785 turn left heading 340, join V21 direct Ogden VOR

Pilot: Left turn heading 340, join V21 direct Ogden, DELTA 2784

Controller: DELTA 2784, maintain present heading, climb and maintain 11,500

Remember we asked to cruise at 11,500 when we talked to clearance delivery

Pilot: present heading, climb and maintain 11,500, DELTA 2784

At some point you will be handed off to another controller. For this flight when you leave approaches airspace you will be handed off to Salt Lake Center.

Controller: DELTA 2784, Leaving my airspace, contact Salt Lake Center 133.6

Pilot: Salt Lake Center, 133.6, DELTA 2784

Pilot: Salt Lake Center DELTA 2784, 11,500 ft crossing Ogden VOR direct Malad City

If Salt Lake Approach could not hand off your VFR flight, as you leave the Bravo airspace, you will hear this.

Controller: DELTA 2784, leaving the Salt Lake Bravo airspace, resume own navigation, squawk 1200, frequency change approved.

Pilot: Resume own navigation, squawk 1200, frequency change approved, DELTA 2784.

The following are typical instructions you will hear as your flight progresses. These may be issued by any of the three radar positions, Approach, Departure or Center. Again, listen, read back and comply.

Climb and maintain 13,500 for traffic

Fly heading 345, when able Proceed direct Malad City VOR

In this situation, you are expected to turn to a 345 degree heading without delay then as soon as you are able, tune and identify the Malad City VOR and turn onto a direct course to the VOR.

Do not exceed MACH .80

Reduce airspeed to 210 knots

To comply with these instructions you must manage your airspeed so that you do not exceed the indicated airspeed restriction. You can go slower but not any faster. You may also get a 'not slower than' restriction

Maintain MACH .76 or greater

Maintain 170 knots or greater until the outer marker

In this last situation you must maintain a speed of at least 170 knots until you reach the outer marker. Once you pass over the outer marker you can slow the aircraft without any addition radio communication.

Cleared via the Spane Four Arrival

Descend via the Spane Four Arrival

Note: *The Spane Four STAR serves Salt Lake City International airport*

What's the difference here? This "Cleared via" directs you to follow the route only while the "Descend via" directs you to comply with the altitude restrictions as well without further instruction.

Controller: DELTA 2784, 15 miles south of the Pocatello airport, report the field in sight.

This interaction can be expected when flying a VFR arrival or when IFR on a Visual approach. Once you see the airport call ATC and tell them you have the airport in sight but you are not authorized to turn towards the airport or land.

Pilot: Approach, DELTA 2784 has the airport in sight

After you report the field in sight ATC can give a variety of instructions for entry into the visual pattern. Typical examples are shown here.

VFR:

Controller: DELTA 2784, Enter a left downwind Runway 21

Pilot: DELTA 2784, Left downwind runway 21 approach

IFR:

Controller: DELTA 2784, Fly heading 030 vectors for visual approach, report the airport in sight.

Pilot: Heading 030, report airport in sight, DELTA 2784

Pilot: Has Pocatello at my 9 o clock, DELTA 2784

Controller: Altimeter 3005, Winds 190 @ 12, cleared visual approach runway 21

In the last example the point of pattern entry is left to the pilot to decide but the expectation is the pattern flown will be the most expeditious to the runway. Example, if you are south of the airport landing on a northerly runway, you are expected to fly straight in, not fly up the side of the airport and turn onto a traditional VFR downwind leg.

The information covered so far is intended to provide enough insight into the ATC system and its standard terms and phrases to help you develop a sense of comfort when dealing with Air traffic Control or "ATC".

The key is to listen, read back and comply

If the controller wants you to do something that could put you and your aircraft in an unsafe situation, tell him "Unable". For instance, if a controller tells you to maintain 250 knots until the outer marker, tell him you are "unable to comply". There is no way you could safely slow down and configure you airplane from 250 knots and make a safe, stabilized landing.

The Clearance Void Time

So far, all the examples have been based at airports served by Air Traffic Control towers. At airports that do have a tower or ATC, known as 'UNCONTROLLED' airports, procedures will differ. The primary of which is the use of Clearance Void Times. Others may include slight changes in the way clearances are issued, especially when the floor of controlled airspace – Class A, B, C, D or E - is significantly higher than the airport elevation. In the eastern part of the United States and over densely populated areas, Class E airspace typically starts 700 or 1200 feet above ground level but in mountainous terrain and over sparsely populated areas, the floor of the controlled airspace may be several thousand feet above the ground, some times as high as 18,000 feet. Controllers are prohibited from issuing control instructions outside controlled airspace and thus may issue conditional clearances with a phrase similar to "when entering controlled airspace". In this situation, **all** responsibility for terrain and obstruction (towers, antennas, buildings, etc) clearance remains with the pilot. You are on the ground at Tooele Valley airport.

> DELTA 2784 is cleared to Salt Lake International airport. When entering Class B airspace, cleared I-80 transition as filed. Climb and maintain 5,500, departure frequency 124.3, squawk 0511.

At an uncontrolled airport, you will obtain you clearance from the approach control or center as appropriate, start and taxi to the runway in use based on the winds. When you are ready for takeoff, you will contact ATC to get your departure release. You will not get a take off clearance. There is specific phraseology for this and it will include a time by which you must be airborne. This is known as a "Clearance Void Time". The phraseology for this is "Clearance void if not off by <zulu time>". The release may also include the earliest time you can take off. Phraseology for this is "Released for departure at <zulu time>". A time check to the nearest ¼ of a minute will be included. You will also be given instruction s for contacting ATC if you do not get airborne in time. Here is what this will sound like.

> DELTA 2784, Released for departure at 1515. Clearance void if not off by 1525. If not off by 1525, Advise Salt Lake Approach no later than 1540 of intentions. Time now 1510 and one half
>
> ***OR***

DELTA 2784, Released for departure. Clearance void if not off by 1525. If not off by 1525, Advise Salt Lake Approach no later than 1540 of intentions. Time now 1510 and one half

What does this really mean? In the first example, you can takeoff no earlier than 1515 and must be airborne by 1525. If you are not airborne by 1525 for whatever reason you must call Salt Lake Approach before 1540 and let them know what you want to do: cancel the flight or get a new release time. The second example is identical to the first but instead of having to wait to takeoff, you can go right now. As always, read this information back to the controller.

Why is this procedure used? Two reasons; first ATC does not know what is happening on the airport and thus cannot dictate what the pilot does. The pilot retains responsibility for the safe operation of the aircraft on the airport. Secondly, the use of release and void times allows the controller to better use the surrounding airspace. If he knows what time you are taking off, he can protect the airspace for you. The void time tells him how long to protect the airspace. If you take off early or late the IFR clearance is not valid, you ***are*** VFR.

The VFR Pattern

As you proceed through the various flight training courses offered by Delta Virtual Airlines, you will fly a lot of what's known as 'VFR pattern' work. The VFR pattern starts at the runway and ends back at the same runway.

The Tower Controller controls this pattern and it has its own unique but standard terms. Pattern work will also introduce a new type of landing called the "Option". Everyone knows what a full stop landing is but there are other types as well including the 'Touch and Go', the 'Stop and Go', the 'Low Approach' and 'Missed Approach'. A clearance "for the Option" is authorization to perform any one of these maneuvers. Here are examples of the phraseology you might encounter when flying in the pattern.

Make left (or right) Traffic, report mid field downwind

Cleared for the Option

Cleared for Touch and Go

Caution Wake Turbulence, departing Heavy B-767, cleared for Stop and Go.

In the first example, the controller is exercising his option to request the pilot to report a specific point in the pattern. If so requested it is up to you to remember to make that report

The following is what a typical exchange would sound like for an aircraft taking off and flying two trips around the pattern at Salt Lake International (KSLC) starting with the aircraft at the runway.

Pilot: DELTA 2784 holding short runway 34R ready for takeoff, request to stay in VFR traffic pattern

Controller: DELTA 2784, cleared into Class Bravo airspace, make right traffic at or below 5,500 ft, altimeter 30.12, Winds 350 @ 12, Runway 34R, cleared for takeoff

Pilot: Cleared into Class B airspace, right traffic at or below 5,500, cleared for takeoff runway 34R, DELTA 2784

Aircraft performs a takeoff and enters a right traffic pattern climbing at or below 5,500 ft MSL. Because the tower did not request a position report, none is required. However, it's not a bad habit to get into making a call when on downwind and state the landing type you want. This often will result in a landing clearance and will remove one more concern – getting the landing clearance - from the busier legs of the pattern.

Pilot: DELTA 2784, mid field downwind, runway 34R, request the Option

At an appropriate point, the Tower controller will issue you a clearance.

Controller: DELTA 2784, Runway 34R, cleared for the Option

Pilot: Cleared for the option, Runway 34R, DELTA 2784

No further calls are required until once again airborne.

Pilot: DELTA 2784 is on the go, Runway 34R

Controller: DELTA 2784, right traffic approved, report downwind

Pilot: Right traffic and report downwind, DELTA 2784

When midfield downwind…

Pilot: DELTA 2784 midfield right downwind, runway 34R, full stop

Controller: DELTA 2784, Caution wake Turbulence, arriving B-757, Runway 34R, Cleared to land.

Pilot: Caution Wake turbulence, cleared to land Runway 34R, DELTA 2784

No further radio communications are necessary until you have landed, then…

Controller, DELTA 2784, turn left when able, squawk standby, contact ground 133.65, when clear of active.

Decoded, this means that when you have slowed the aircraft to normal taxi speeds, exit the runway at the next available taxiway to the left and

contact the ground controller on… The "when clear of active" clause is used to make sure you do not change frequencies until you are physically off the runway.

Typical Flights

In the following scenarios, we'll see what the radio traffic between a pilot and ATC would sound like for a typical flight. Actually we will do three; the first is VFR with ATC service from the departure gate to the arrival gate (KSLC-KPVU). The second will also be VFR but with ATC service at the departure and destination airports but not service between the two (KSLC-KBOI). In both cases the departure airport will be Salt Lake City International which is situated inside Class Bravo airspace and requires an ATC clearance to get into or out of. The arrival airport will not be inside Bravo airspace. The third flight will be an IFR flight from Salt Lake City International to Pocatello Idaho. These will cover only the radio transmissions and assume the checklists are being followed and a VATSIM flight plan has been filed.

Scenario 1 - VFR from Salt Lake International (KSLC) to Provo Municipal (KPVU) with full ATC

Pilot: Salt Lake Clearance, DELTA 2784 request VFR clearance to the south at 9,500

Controller: DELTA 2784, Salt Lake Clearance, Clearance on request

Controller: DELTA 2784, Clearance available, advise when ready to copy

Pilot: DELTA 2784 Ready to copy

Controller: DELTA 2784 is cleared into the Bravo airspace VFR I-15 transition to the south as requested, climb and maintain 6,500 feet, expect 9,500 in ten minutes, departure 124.3, squawk 0521

Pilot: DELTA 2784 is cleared into the Bravo airspace VFR I-15 transition to the south, maintain 6,500, expect 9,500 in ten minutes, departure on 124.3, squawk 0521.

Controller: DELTA 2784, read back is correct, frequency change approved, Salt Lake Ground 133.65.

Note: VATSIM will normally give the frequency with every frequency change.

Pilot: Good day, DELTA 2784

Pilot: Salt Lake Ground, DELTA 2784, Delta Flight Academy ramp, ready for push and start with information Tango

Controller: DELTA 2784, Salt Lake Ground push and start at pilot's discretion, advise when ready to taxi.

Pilot: DELTA 2784, ready to taxi

Controller: DELTA 2784, Taxi to runway 34R, via taxiway Golf, Echo, Hotel, Hotel One

Pilot: Taxi to runway 34R, via taxiway Golf, Echo, Hotel, Hotel One, DELTA 2784

As you get close to Hotel One:

Controller: DELTA 2784, contact Tower 119.05

Pilot: Tower 119.05, DELTA 2784

When you are ready to go:

Pilot: Salt Lake Tower, DELTA 2784 holding short Runway 34R, ready for takeoff

Controller: DELTA 2784, Salt Lake tower, fly runway heading, climb and maintain 6,500. Runway 34R, Cleared for takeoff

Pilot: Fly runway heading, 6,500 feet, cleared for takeoff, DELTA 2784

After takeoff:

Controller: DELTA 2784 Contact Departure 124.3

Pilot: Departure on 124.3, DELTA 2784

Pilot: Salt Lake Departure, DELTA 2784 passing 4,800

Controller: DELTA 2784, Salt Lake departure, radar contact

Controller: DELTA 2784, turn right heading 160, climb and maintain 6,500

Pilot: Right turn heading 160, climb and maintain 6,500, DELTA 2784

Controller: DELTA 2784, Climb and maintain 9,500, continue I-15 VFR Southbound Transition to Point of the Mountain, report Point of the Mountain

Pilot: Climb and maintain 8,500 I-15 VFR Southbound Transition, report Point of the Mountain

Pilot: Salt Lake Departure, DELTA 2784 reporting Point of the Mountain

Controller: DELTA 2784 roger, descend and maintain 7,000, Provo altimeter 30.08, report airport in sight.

Pilot: descend and maintain 7,000, Provo altimeter 30.08, have airport in sight.

Controller: DELTA 2784 contact Provo Tower 125.3

Pilot: Contact Provo Tower 125.3, DELTA 2784

Pilot: Provo Tower, 5 miles northwest with Information Uniform for landing Runway 13.

Controller: DELTA 2784, Provo Tower, winds 130 @ 6, Runway 13, cleared to land.

Pilot: Winds 130 @ 6, Runway 13, cleared to land, DELTA 2784

Controller: DELTA 2784, Welcome to Provo, turn left next taxiway, squawk standby, contact ground 119.4

Pilot: Left turn next taxiway, ground 119.4, DELTA 2784

Pilot: Provo Ground, DELTA 2784, clear of runway 13, request taxi to the gate.

Controller: DELTA 2784, Provo Ground, taxi to the gate via taxiway Alpha

Pilot: Taxi to the gate via Alpha, DELTA 2784

Scenario 2 - VFR from Salt Lake International (KSLC) to Boise (KBOI) with ATC only at Salt Lake and Boise

Pilot: Salt Lake Clearance, DELTA 2784 request VFR clearance to the northwest at 14,500

Controller: DELTA 2784, Salt Lake Clearance, Clearance on request

Controller: DELTA 2784, Clearance available, advise when ready to copy

Pilot: DELTA 2784 Ready to copy

Controller: DELTA 2784 is cleared VFR into the Bravo airspace to the northwest as requested, climb and maintain 10,000 feet, expect 14,500 in ten minutes, departure on 124.3, squawk 0521

Pilot: DELTA 2784 is cleared VFR into the Bravo airspace to the northwest, maintain 10,000, expect 14,500 in ten minutes, departure 124.3, squawk 0521.

Controller: DELTA 2784, read back is correct, contact Salt Lake ground 133.65.

Pilot: 133.65 and good day, DELTA 2784

Pilot: Salt Lake Ground, DELTA 2784, Delta Flight Academy ramp, ready for push and start with information Tango

Controller: DELTA 2784, Salt Lake Ground push and start at pilot's discretion, advise when ready to taxi.

Pilot: DELTA 2784, ready to taxi

Controller: DELTA 2784, Taxi to runway 34R, via taxiway Golf, Echo, Hotel, Hotel One

Pilot: Taxi to runway 34R, via taxiway Golf, Echo, Hotel, Hotel One, DELTA 2784

As you get close to Hotel One:

Controller: DELTA 2784, contact Tower 119.05

Pilot: Tower 119.05, DELTA 2784

Pilot: Salt Lake Tower, DELTA 2784 holding short Runway 34R, ready for takeoff

Controller: DELTA 2784, Salt Lake tower, fly runway heading, climb and maintain 6,500. Runway 34R, Cleared for takeoff

Pilot: Fly runway heading, 6,500 feet, cleared for takeoff, DELTA 2784

Controller: DELTA 2784, Contact Departure 124.30

Pilot: Departure on 124.30, DELTA 2784

Pilot: Salt Lake Departure, DELTA 2784 passing 4,800

Controller: DELTA 2784, Salt Lake departure, radar contact

Controller: DELTA 2784, turn left heading 300, climb and maintain 10,000

Pilot: Left turn heading 300, climb and maintain 10,000, DELTA 2784

Controller: DELTA 2784, Climb and maintain 14,500

Pilot: Climb and maintain 14,500, DELTA 2784

Controller: DELTA 2784 leaving the Bravo airspace, resume own navigation, Squawk 1200, frequency change approved 122.80

Pilot: Own navigation, Squawk 1200, 122.80, DELTA 2784

As you approach Boise airspace...

Pilot: Boise Approach, DELTA 2784, inbound Boise for landing passing 14,500 for 6,000 with information Charlie

Controller: DELTA 2784, Boise Approach, Squawk 0506 and ident

Pilot: Squawk 0506, ident DELTA 2784

Controller: DELTA 2784, radar contact 22 miles southeast Boise airport, expect runway 28R

Pilot: Expect runway 10R, DELTA 2784

Controller: DELTA 2784, airport 12 O'clock 8 miles, report the field in sight

Pilot: Field in sight, DELTA 2784

Controller: DELTA 2784, enter a right downwind runway 10R, contact tower 119.1

Pilot: Enter a right downwind runway 10R, tower on 119.1, DELTA 2784

Pilot: Boise, DELTA 2784, midfield right downwind runway 10R

Controller: DELTA 2784, report turning final runway 10R

Pilot: Report turning final, DELTA 2784

Pilot: Tower, DELTA 2784 turning final runway 10R

Controller: DELTA 2784, winds 280 @ 8, Runway 10R, cleared to land

Pilot: Cleared to land, DELTA 2784

Controller: DELTA 2784, turn left when able, contact ground point

Pilot: Left turn next taxiway and ground 121.9, DELTA 2784

Pilot: Boise Ground, DELTA 2784, clear of runway 10R request taxi to the gate.

Controller: DELTA 2784, Boise Ground, taxi via taxiway Charlie and Golf, hold short runway 31

Pilot: Taxi to the gate via Charlie and Golf, hold short runway 31, DELTA 2784

Controller: DELTA 2784 cross runway 31, continue taxi to the gate

Pilot: Cross runway 31, continue taxi, DELTA 2784

Scenario 3 - IFR from Salt Lake City (KSLC) to Pocatello Idaho (KPIH) with full ATC.

For this flight file the following flight plan:

Route of flight: KSLC SLC9.TCH V21 PIH KPIH
Requested Altitude: 16,000

Pilot: Salt Lake Clearance, DELTA2784, Clearance on request to Pocatello

Controller: DELTA 2784, Salt Lake Clearance, clearance available, advise when ready to copy

Pilot: DELTA 2784, ready to copy

Controller: DELTA 2784 is cleared to Pocatello via the Salt Lake City 9 Wasatch transition, then as filed. Climb and maintain 10000 feet, expect 16,000 10 minutes after departure, departure frequency 124.3, squawk 0510

Pilot: DELTA 2784 cleared to Pocatello via the Salt Lake City 9 Wasatch transition, then as filed. Climb and maintain 10000 feet, expect 16,000 10 minutes after departure, departure frequency 124.3, squawk 0510

Controller: DELTA 2784, read back correct, frequency change approved 133.65

Pilot: Salt Lake Ground, DELTA 2784, Delta Flight Academy ramp, ready for push and start with information Tango

Controller: DELTA 2784, Salt Lake Ground push and start at pilot's discretion, advise when ready to taxi.

Pilot: DELTA 2784, ready to taxi

Controller: DELTA 2784, Taxi to runway 34R, via taxiway Golf, Echo, Hotel, Hotel One

Pilot: Taxi to runway 34R, via taxiway Golf, Echo, Hotel, Hotel One, DELTA 2784

As you get close to Hotel One:

Controller: DELTA 2784, contact Tower 119.05

Pilot: Tower 119.05, DELTA 2784

Pilot: Salt Lake Tower, DELTA 2784 holding short Runway 34R, ready for takeoff

Controller: DELTA 2784, Salt Lake tower, fly runway heading, Winds 340 @ 9, Runway 34R, Cleared for takeoff

Pilot: Fly runway heading, cleared for takeoff, DELTA 2784

Controller: DELTA 2784, Contact Departure 124.30

Pilot: Departure on 124.30, DELTA 2784

Pilot: Salt Lake Departure, DELTA 2784 passing 4,800

Controller: DELTA 2784, Salt Lake departure, radar contact thru 5,000, join V21, climb and maintain 16,000.

Pilot: Salt Lake Departure, join V21, climb and maintain 16,000.

Controller: DELTA 2784, when able proceed direct Malad City VOR

Pilot: Direct Malad City VOR, DELTA 2784

Controller: DELTA 2784, Contact Salt Lake Center frequency 133.60

Pilot: Salt Lake Center on 133.60, DELTA 2784 good day.

Pilot: Salt Lake Center Center, good morning DELTA 2784 level 16,000, direct Malad City VOR.

Controller: DELTA 2784, Jacksonville Center, resume own navigation

Pilot: resume own nav, DELTA 2784

Controller: DELTA 2784, at pilots discretion, cross PIH VOR at 9,000, Pocatello altimeter 30.08

Pilot: Beginning descent to cross PIH VOR at 9,000, 30.08 DELTA 2784

Controller: DELTA 2784, thank you

Controller: DELTA 2784, fly heading 030 vectors for the ILS Runway 21 approach, descend and maintain 8,000, altimeter 30.08.

Pilot: Fly heading 030 vectors for the ILS Runway 21 approach, descend and maintain 8,000, altimeter 30.08, DELTA 2784

Controller: DELTA 2784, descend and maintain 7000

Pilot: Descend and maintain 7000, DELTA 2784

Controller: DELTA 2784, Turn right heading 180, descend and maintain 6000 until established, cleared ILS 21 approach

Pilot: Right turn 180, descend and maintain 6,000, cleared ILS 21 approach, DELTA 2784

Controller: DELTA 2784, 2 miles from TYHEE, contact Pocatello Tower on 119.1

Pilot: 2 miles TYHEE, Tower 119.1, DELTA 2784

Pilot: Pocatello Tower, 5 mile final 21, DELTA 2784

Controller: DELTA 2784, winds 210 @ 6, Runway 21 cleared to land.

Pilot: Cleared to land 21, DELTA 2784

Controller: DELTA 2784, Turn left when able, taxi to the gate, monitor this frequency

Pilot: Left turn when able, monitor frequency, DELTA 2784

Courtesy

You may notice in these examples the use of some greetings and courtesy such as “thank you”, “good day”, see you next time” etc. There is nothing wrong with this and it actually brings a level of professionalism and adds a touch of humanity to the otherwise impersonal and faceless world of ATC. Everyone operating in the ATC system is a part of a team that has to function together, both pilot and controller, to make it work. Check your emotions at the dispatch desk. Getting mad and making inappropriate comments on the radio or in text is not allowed on VATSIM.

VATSIM Application

This guide is based primarily on the real world structure of the ATC environment. VATSIM/VATUSA tries to mirror this concept but in the interest of enjoyment and because they simply cannot man every facility and position all the time, you will often see higher level facilities absorb the functions below them. For instance, if Tower is open but Ground and Clearance are not, Tower will perform those functions. This goes all the way up to Center. You will routinely see a center controller issuing clearances, taxi instructions, takeoff and landing clearances, and performing approach and departure control services in addition to his normal center duties. Because of this you will see certain optional items always issued such as departure frequencies to departing aircraft. Therefore, there is no need to be concerned if VATSIM seems to do things a little differently. Simply understand it is happening and go with the flow. Listen, read back and comply and have fun.

ICAO Phonics Numbers and Alphabet

Number	Word	Pronunciation
0	Zero	**ZE**-RO
1	One	WUN
2	Two	TOO
3	Three	TREE
4	Four	**FOW**-ER
5	Five	FIFE
6	Six	SIX
7	Seven	**SEV**-EN
8	Eight	AIT
9	Nine	**NIN**-ER
Character	**Word**	**Pronunciation**
A	Alfa	**AL**FAH
B	Bravo	**BRAH**VOH
C	Charlie	**CHAR**LEE
D	Delta	**DELL**TAH
E	Echo	**ECK**OH
F	Foxtrot	**FOKS**TROT
G	Golf	GOLF
H	Hotel	HOH**TELL**
I	India	**IN**DEE AH
J	Juliett	**JEW**LEE ETT
K	Kilo	**KEY**LOH
L	Lima	**LEE**MAH
M	Mike	MIKE
N	November	NO**VEM**BER
O	Oscar	**OSS**CAH
P	Papa	PAH**PAH**
Q	Quebec	KEH**BECK**
R	Romeo	**ROW**ME OH
S	Sierra	SEE**AIR**AH
T	Tango	**TANG**GO
U	Uniform	**YOU**NEE FORM
V	Victor	**VIK**TAH
W	Whiskey	**WISS**KEY
X	X-ray	**ECK**SRAY
Y	Yankee	**YAN**GKEY
Z	Zulu	**ZOO**LOO

References and Websites

Charts and airport diagrams are available at http://www.myairplane.com/

VFR/IFR charts, airport information are available at http://www.SkyVector.com/

FAA Air Traffic Regulations- Air Traffic Control-Order J0 7110.65S
http://www.faa.gov/airports_airtraffic/air_traffic/publications/atpubs/ATC/index.htm

Gary Widup KSLC Scenery available at http://www.avsim.com/

VATUSA-virtual ATC at http://www.vatusa.net/html/index.php

Acknowledgements and Legal Stuff

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While we strive to mirror real-world operations, this manual is not designed for use in the operation of real-world aircraft.

NOT FOR REAL WORLD AVIATION USE