

ATIS
121.0
229.1

ARR
119.1
225.2

TWR
118.4
236.6

GND
121.9
275.8

DEP
119.2
225.2

ELEV 477
TDZE 14 441

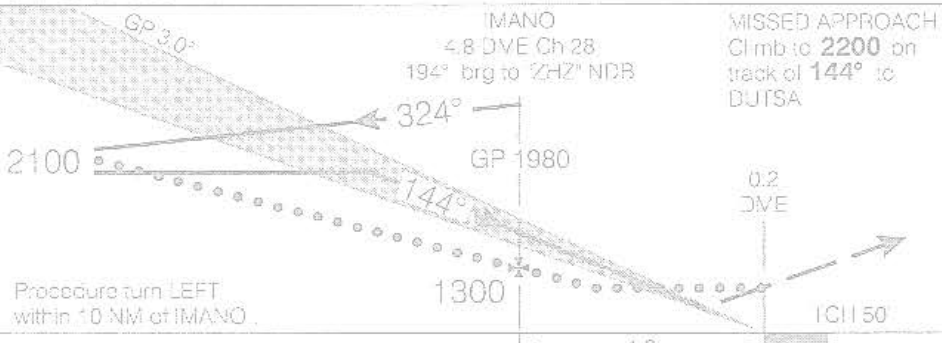
2100 from "ZHZ" NDB
to IMANO 014° 8.2 NM

CYHZ

GLOBAL AIR TRAFFIC CONTROL



SAFE ALT 100 NM 2800



CATEGORY	A	B	C	D
ILS/DME	641	(200)	1/2 RVR 26	
LOC/DME LOC/NDB	740	(299)	1 RVR 50	
CIRCLING	980 (503) 1 1/2		980 (503) 2	1080 (603) 2

FAF to MAP 4.6 NM					
Knots	70	90	110	130	150
Min:Sec	3:56	3:04	2:30	2:07	1:50

ILS/DME or LOC RWY 14

VAR 19°W

445251N 633031W

HALIFAX NS
HALIFAX/STANFIELD INTL

NAD83

EFF 30 AUG 07

CHANGE: A/D name

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INTRODUCTION

There are many Air Traffic Control simulations but at Aerosoft we never found one that we really liked. Some were really accurate but were hard to use and all suffered from the lack of coverage. We wanted to be able to control every airport and we wanted to do so with all the correct procedures. We also wanted the correct airlines, using the correct aircraft at every airport. So Lufthansa in Berlin, Air France in Paris. But also the long range aircraft of both in New York. It seemed an impossible project.

But Robert Miroszewski had an idea. If he would just build the framework of an Air Traffic Control system and filled it with databases we might end up with a new kind of simulator that was 'global'. To our surprise it worked, we had the database for all airports with all procedures in NavDataPro, databases of aircraft and airlines could be created. So now we have a simulator that covers the world and can include any kind of aircraft or airline. All aircraft behave realistic and you have all the information that a real controller has. All the routes, all the procedures and the correct airline with the correct aircraft type will show up on your screen.

Inevitably, testers wanted to know how good they were in controlling a busy airport so a 'game' mode was included where traffic load increases until you are unable to cope. You can then compare your score with those of others. But make no mistake, this is a simulator, not a game. It was made with the help of many controllers in Europe and the USA. They like it. We like it. You will like it.

SYSTEM REQUIREMENTS

The following items are required:

- Windows XP/Vista/Windows 7/ Windows 8 (fully updated)
- Microsoft .NET Framework 4 (<http://www.microsoft.com/en-us/download/details.aspx?id=17718>)
- 2.0 GHz processor
- 2 GB RAM internal memory
- 128 MB graphic card
- Mouse with mouse wheel
- PDF reader for manual

Basically every computer that runs Windows 7 or 8 will run Global Air Traffic Control.

CREDITS

Concept:	Robert Miroszewski
Programming:	Robert Miroszewski
Project Management:	Mathijs Kok (Aerosoft)
Scenarios:	Mathijs Kok (Aerosoft)
Manual, documentation:	Mathijs Kok (Aerosoft), Alexander Halbritter
Installer:	Andreas Mügge (Aerosoft)
Testing:	Several good folks who will all be getting a free copy

Several beta testers helped with creating configuration files. Certainly Alexander Halbritter needs to be mentioned. He created dozens of aircraft and airlines configurations, very much appreciated. Emma Kok was kindly assisting in the multiplayer testing.

The weather data comes from the Research Applications Laboratory (RAL) of the National Center for Atmospheric Research (NCAR), which is operated by the University Corporation for Atmospheric Research (UCAR) pursuant to a Cooperative Agreement with the National Science Foundation. Copyright © 2010, UCAR.

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CONTACT SUPPORT

Support for this product is offered by Aerosoft. We prefer to have a support forum for the simple reason that it is fast and efficient because customers help customers when we are sleeping:

<http://forum.aerosoft.com/index.php?forum/611-global-air-traffic-control/>

This should be your first stop for any support. If you prefer support by email do accept that this could take a bit longer as it might be send from persons to person and that email support in the weekends is always slow:

https://aerosoft.zendesk.com/anonymous_requests/new

We feel strongly about support. Buying one of our products gives you the right to waste our time with questions you feel might be silly. They are not.

INSTALLING AND REMOVING THE PRODUCT

Installing is simple, execute the SETUP.EXE file and follow the instructions on screen. After the product is installed it will need to be activated using the Aerosoft Launcher. Just follow the instructions on screen!

We strongly advise you to use administrative rights when installing this application.

Never remove the product manually, always use the control panel applet to do so. Failing to do so could create serious problems. The actual name of the applet depends on the Windows version you have but on most it can be found under "Uninstall or change a program"

TRY BEFORE YOU BUY

There is a demo version of GATC. It includes only Munich airport and is time limited. It is fully functional in every other aspect. If you have the demo version of Global Air Traffic Control installed there is no need to remove that before installing the full version. It will install on top of the demo and replace all files.

YOUR TASK AS AIR TRAFFIC CONTROLLER

As an air traffic controller your job is to assist pilots. Only you can see all aircraft and only you have an idea what they are doing and only you can tell a pilot how to safely approach and depart a busy airport. It is very much a mind game, you need to be able to create a 3D map in your mind from 2D information on your scope and you need to be able to predict how a situation will develop.

You will be handling Approach, Departure and Tower. Depending on the size of the airport in reality these roles can be merged and separated (sometimes over many people).

- The Approach Controller accepts the aircraft when they are approaching the airport and guides them to a position where they can start their final approach to the runway. You do this by guiding them along STARs (Standard Terminal Arrival Routes, see the chapter on procedures).
- The Departure controller accepts the aircraft shortly after they leave the runway and guides them via SID procedures (Standard Instrument Departures, see the chapter on procedures) to the Airway they will use enroute to the destination.
- The Tower Controller (so called because he is the only controller who uses displays but also what he can see outside the window), is responsible for all traffic heading for a runway, traffic leaving a runway and traffic on a runway. He will clear aircraft to land and depart. Departing aircraft will stop before they enter a runway and await your **CLEARED TO LINE UP** command. When they are on the runway they will wait until you give the **CLEARED FOR TAKE OFF** command. Arriving aircraft will expect a **CLEARED TO APPROACH** command telling them to line up with the runway extended centre line and a **CLEARED TO LAND** command telling them the runway is clear and they can land.

To condense it all in one sentence, your job is to get approaching aircraft onto the runway and departing aircraft to the final point of the SID. Safely and without delays.

DO NOT PANIC

A good advice for any Air Traffic Controller but also if you just started out with this simulation. Although it might seem complex in the beginning you can make it as simple as you want. We do not assume any knowledge of Air Traffic Control and will try to explain anything. If you got any question or any comment, just come to our forums and we'll discuss it.

USER INTERFACE & SETTINGS

You will find that there are often multiple ways of doing something in GATC, we found out during the testing that different people prefer different things. It also depends on your screen resolution or if you have more than one screen. On a single screen the interface with the two pull out menu's (left and right) is probably easiest but if you have multiple screens it's easier to use one screen for the radar and the other for the aircraft strips and other menu's.

ZOOM, MOVE AND MEASURE

To move the view keep the right mouse button pressed and move the mouse. To zoom in and out use the mouse wheel. If you need to know the distance and heading between two points double click the left mouse button and keep pressed after the last click. Now move the mouse to see the distance and heading.

GAME SPEED AND STEP BACK

Using the Simulation rate slider you can compress time between 1x and 10x. Clicking the Step back button will jump back in time 3 minutes so you can correct mistakes you made. Click the button three times you jump back 9 minutes (3x3) and this way you can jump back 30 minutes in total. The Pause button will pause the simulation until you click it again. When there is a message displayed on screen the simulator is paused.

AIRCRAFT DISPLAY

Aircraft are displayed as small green squares on the screen. A solid green line extends showing the direction of travel, the end of the line indicated where the aircraft will be one minute from now. A series of small green stars behind the aircraft shows the route it has flown. The text includes some of the most vital information.



Aircraft icon and information.

Callsign	Aircraft type
Current Flight level ↑or↓ Cleared Flight level	Speed

When two aircraft get too close to each other they will be shown in yellow. When there is direct danger they will show in red and the 'caution' sound is played.

As your display can get rather cluttered it helps to be able to drag (left mouse button) the information display to another location. You could also use this to differentiate traffic. We saw one of our testers drag the information of departing aircraft to the left and arriving aircraft to the right. Using an option in the settings menu you can have a box drawn around the information.

LEFT PULL OUT MENU

The left pull out menu contains the aircraft strips. These symbolize the aircraft under your control. Yellow strips indicate departures, blue strips arrivals. These strips are important because they tell you exactly what aircraft is doing what. You can also see the aircraft strips in an undocked window, using the option in the VIEW menu. Note the speed shown is ground speed.

Callsign	Last command	Altitude
Aircraft type		Speed

DLA6637	DCT NINUR IRB/2A	18000 SPD 280
E190		

Callsign	Last command	Altitude
Aircraft type		Speed
	SID to be flown	Runway

AWE8250	DCT DM070 EVI/2Q	20000 SPD 0
E190	TO: EVIVA	RWY 08L
	Line Up	Takeoff

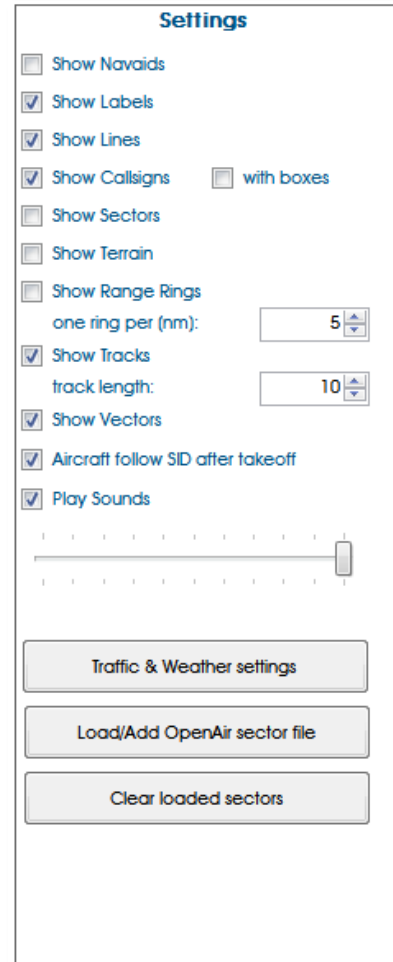
RIGHT PULL OUT MENU

On the right side of the screen you can pull out a tab that has three sections, Settings, Traffic & Weather and Runways.

SETTINGS

The settings dialog (on the right side pull out dialog) allows you to toggle the display items and change certain settings.

- **Show Nav aids:** Toggles the display of VOR's, NDB's and waypoints
- **Show Labels:** Toggles the display of identifiers of nav aids
- **Show Lines:** Toggles the display of lines between waypoints (used for procedures)
- **Show Callsigns:** Toggles the display callsigns and other information on the aircraft
- **Show Sectors:** Toggles the display of OpenAir sector files
- **Show Terrain:** Toggles the display of terrain data
- **Show Range rings:** Toggles the display of circles around the airport centre point
- **Track Points:** Toggles the display of dots behind the aircraft (showing the route that has been flown)
- **Show Vectors:** Toggles a line in front of the aircraft showing the heading, the length of the line indicates where the aircraft is in one minute
- **Aircraft follow SID after takeoff:** When active the aircraft will follow the planned SID after take-off, when deactivated it will continue on runway heading.
- **Play Sounds:** Toggles the playing of sounds (the caution warning is always played).
- The **Traffic & Weather settings** open a new dialog (see below)
- The **Load/Add OpenAir sectors file** allows you to select sector files to be displayed, you can select more than one but keep in mind they are capable of slowing down the simulator
- **Clear loaded sectors** will remove all sectors, allowing you to make a new selection.



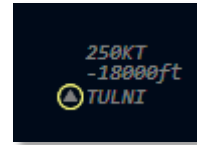
Simulator settings

WAYPOINTS AND NAVIGATION BEACONS

Waypoints are the points that define a route. In aviation they are either radio beacons like VORs or NDBs or intersections of radials. For this simulation however they are all seen as the same, points you can tell an aircraft to fly to.

There are two kinds of waypoints, those without restrictions and those with restrictions. Waypoints without restrictions are just points that the aircraft has to fly over, they are shown as a solid triangle. Waypoints with restrictions have an altitude (that can be 'at', 'below' or 'above') or a speed restriction (always 'below'). You will have to give the aircraft the right commands so they obey these restrictions. These waypoints are shown as a solid triangle with a circle around them. If you hover your mouse cursor on these the restrictions are shown.

In the sample shown the aircraft will have to be below or at 18000ft and at 250 knots when it arrives at this waypoint. If you have cleared an aircraft for a procedure it will not automatically follow all restriction, you still give commands for altitude and speed. And you will still have to clear the aircraft for approach and landing!

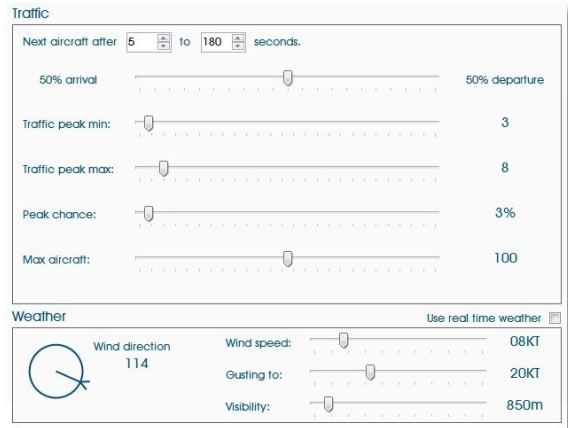


Waypoint

It is very important to know the restrictions on a SID or a STAR! If you have access to real aviation charts you can use those of course, but make sure they match the database you are using!

TRAFFIC & WEATHER SETTINGS

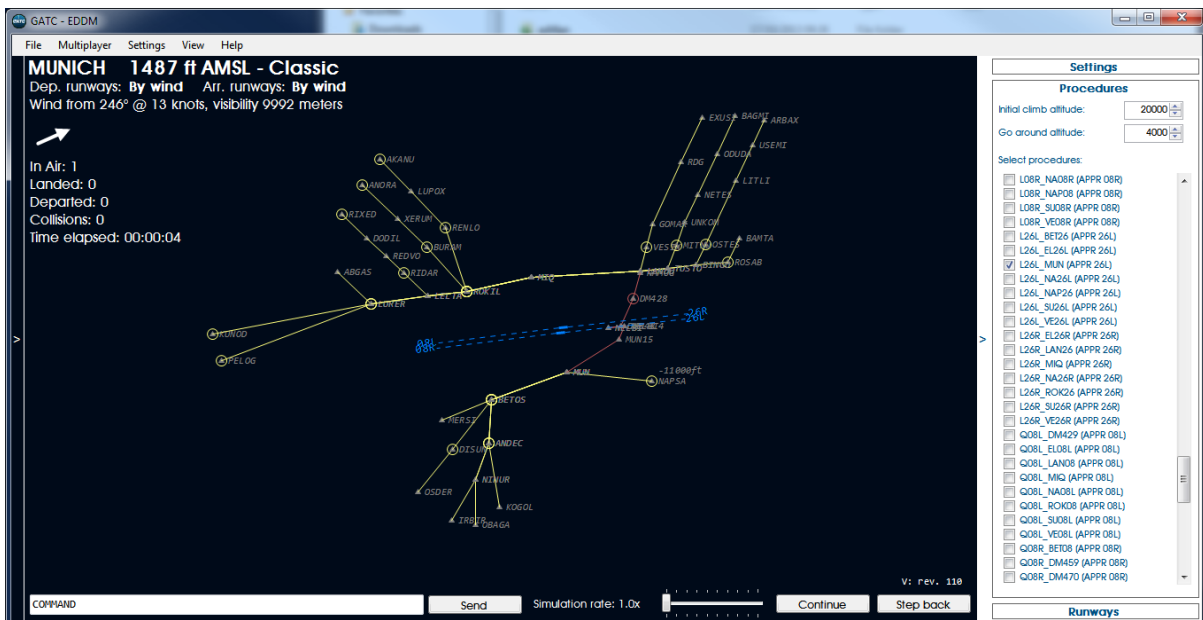
In this dialog you can change the traffic settings and the weather.



Traffic and Weather settings

- **Next Aircraft after:** The pause between aircraft
- **Arrival/Departure:** The relation between arriving and departing aircraft
- **Traffic peak min:** The minimum amount of aircraft of a traffic peak event
- **Traffic peak max:** The maximum amount of aircraft of a traffic peak event
- **Peak chance:** The chance that every new aircraft triggers a traffic peak
- **Max aircraft:** Set the maximum number of aircraft in the simulation
- **Weather:** Select real weather (requires an online connection) or allows you to set the weather conditions. Keep in mind that setting a very low visibility can cause problems. Even if aircraft could land in zero visibility they still need to see the taxiway to get of the runway! At low visibilities a visual approach will not be possible and you are restricted to using the runways that have ILS.

To avoid a predictable flow of aircraft you can set a Traffic peak. In the shown example there is a 3% change that a new aircraft is the start of a traffic peak that will spawn between 3 and 8 aircraft in a short period of time. It could be that you will have 8 new aircraft showing up on your screen in two minutes. **More than any other setting this is used to set the difficulty of the simulation.**



Munich Airport with the STARs for Runway 26L shown

OPENAIR SECTOR FILES

GATC supports the display of aviation sector files (that can show control zones, forbidden area etc.), in the standard OpenAir format. We have included a set of OpenAir files for many countries. But you can collect your own (new or updated) from the Internet. One of the best sources we could find was at <http://soaringweb.org/Airspace/HomePage.html>, a fine community of pilots!

RUNWAYS

Runways are displayed as blue lines with dotted extended centre lines with the runway id. Using the right slide out menu you can set several parameters.

- **Extended centreline length:** allows you to set the length of the dotted line. Note the line shows the actual heading of the runway and the identifier is always rounded of the nearest 10 degrees. So a runway 06 might have a heading of 64°
- **Select departure / arrival runways:** allows you to select the runways (more than one can be selected) used for landings or departures. You can also let the wind decide.
- **Show guidelines:** Toggles the display of a set of green lines that can assist you in lining up aircraft for the runway. This is not a standard feature on real ATC scopes.
- **Select visible approaches:** Toggles the runways that have approach systems like ILS. On a major airport all the runways used for landing will have those. They are shown as a solid green line.

Runways

Ext. centerline length:

Select departure runway:

By wind

04

06

09

18C

18L

18R

Select arrival runways:

By wind

04

06

09

18C

18L

18R

Show guidelines for:

04

06

09

18C

18L

18R

22

Select visible approaches:

ILS06

ILS18C

ILS18R

ILS22

ILS27

ILS36C

ILS36R

Runway settings

PROCEDURES

Procedures are standard routes to and from runways, look at them as roads. As long as the aircraft stay on these roads the controllers know where they are, when they get to certain points and that makes it easier to line them up.

Note that procedure are filtered by the selection of the runways!

There are four types of procedures.

- STAR, Standard Terminal Arrival Route links the last point of the flight plan (called the transition) to the first point of the approach procedure (called the IAF or Initial Approach Fix). STARs are shown in yellow.
- IAP, Instrument Approach Procedure links the IAF to the runway. This can be an ILS or any other procedure. IAPs are shown in red.
- SID, Standard Instrument Departure (or also known as departure procedures, DP) starts at the runway and end at a waypoint on an airway. That is where your standard flight plan will start. SIDs are shown in green.
- Transitions (not always used) link the STAR to the IAP. They allow one STAR to be connected to multiple runways.

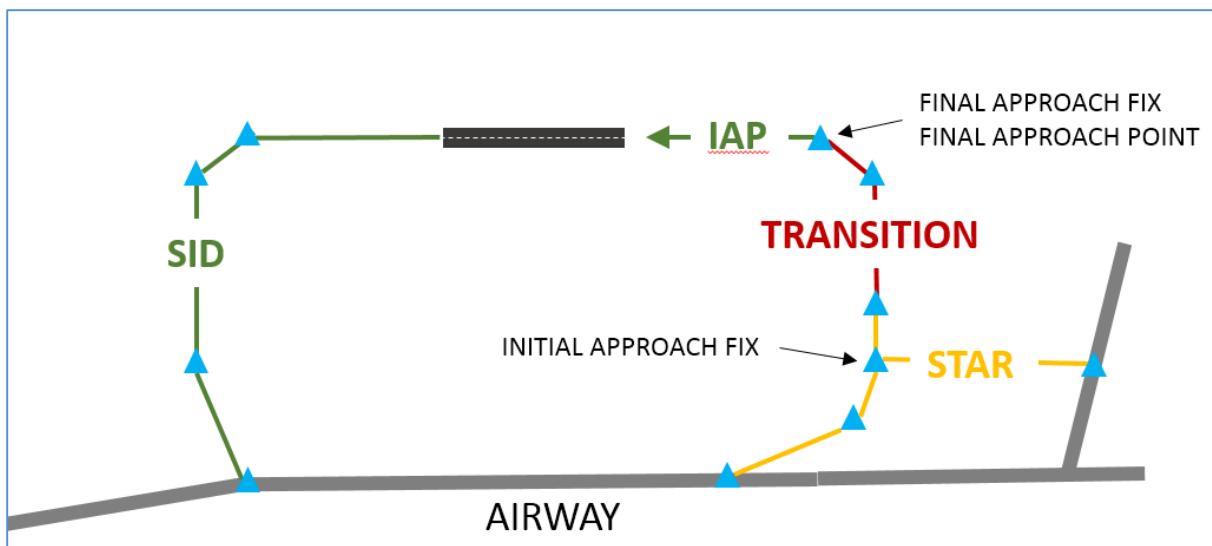
Procedures

Initial climb altitude: 20000

Go around altitude: 4000

Select procedures:

- ALL
- ALL STARS FOR RWY 08L
- ALL SIDS FOR RWY 08L
- ALL STARS FOR RWY 26R
- ALL SIDS FOR RWY 26R
- ALL STARS FOR RWY 08R
- ALL SIDS FOR RWY 08R
- ALL STARS FOR RWY 26L
- ALL SIDS FOR RWY 26L
- ALG1E (SID 08R)
- ALG1N (SID 26R)
- ALG1Q (SID 08L)
- ALG1S (SID 26L)
- ANKE6S (SID 26L)
- ANKE7Q (SID 08L)
- ANKE8E (SID 08R)
- ANKE8N (SID 26R)
- BIBA1E (SID 08R)
- BIBA1N (SID 26R)



COMMANDING AIRCRAFT

There are four ways to interact with the aircraft on your display.

USING THE TEXT COMMAND BAR

The text command bar will give you quick access to all commands you can give an aircraft. It will take some time getting used to it but there are certain more complex commands that can only be given this way. See the **COMMANDS** chapter for all commands.

USING THE LEFT MOUSE BUTTON

When you left click on an aircraft tag a small dialog will open that allows you **SPEED, ALTITUDE** and **HEADING** commands.

DRAG AND DROP

The fastest way to send an aircraft to waypoint or assign it a new heading is to drag and drop. Left click on the aircraft and drag (keep the left mouse button pressed) to a waypoint to give the **DIRECT TO** command. Or just drag it to any position on the display to give it a **HEADING** command.

Dragging the aircraft symbol to the extended runway centre line will give the **CLEARED FOR APPROACH** command (keep in mind the aircraft will perform missed approach procedure if you do not give it permission to land!) You can also drag the aircraft symbol directly to the runway and that will give the aircraft the **CLEARED TO LAND** permission.

TOUCH INTERFACE

Perhaps the most intuitive way of using the program is with the touch interface. Of course you need a touch screen and Windows 7 or 8 for that. All the standard touch commands will work.

DEPARTURES

Departures are less complex than arrivals because after leaving the runway the aircraft will automatically start to follow the SID it has been assigned. Your task as controller is to get the aircraft to the last point of the SID as fast and efficient as possible.

When a departing aircraft appears it will be at the holding point close to a runway. Click on the aircraft strip to accept it. Aircraft have to stop here and await permission to enter the runway. Clicking the Line Up button will give the aircraft permission to enter the runway and line up with the centre line. It will then hold and wait for you take-off permission. How long the line-up takes depends on the aircraft type and the airport. Clicking on the Take-off button will give the aircraft permission to take-off. When needed you can tell the aircraft to abort the take-off, using the abort button that will show when the aircraft is taking off. It will then clear the runway as fast as possible.

After take-off it will stay on the runway centreline heading as it gathers speed and retracts the gear. It will then turn towards the first point of the SID, all the time climbing to the Initial Climb Altitude (set on the procedures tab). It will level out at that altitude at a speed of 250 knots or less.

Right after take-off you can clear the aircraft to another attitude, but keep in mind that the SID might have restrictions so you have to know the SID! You can also assign it another speed but keep in mind that all traffic has to stay under 250 knots under 10.000 feet (FL100).

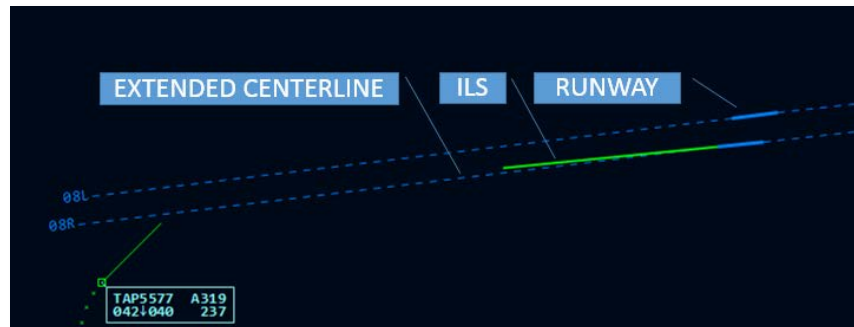
ARRIVALS

Arrivals demand more attention of the controller because they are less automated. When an arriving aircraft appears it will be at cruise altitude and at cruise speed. Click on the aircraft strip to accept it. It will be heading to the first point of the STAR it intends to follow. Your task will be to guide it to a full stop on the runway.

Left click on the aircraft information and assign it a new altitude (check the first point of the STAR to see if there are restrictions) and when needed a lower speed. Keep in mind that under 10.000 feet (FL100) the maximum speed is 250 knots.

When there is not a lot of traffic you can clear the aircraft to join the STAR procedure and it will follow it automatically. You will need to assign it speed and altitude though. When things are busy it will be probably easier to keep full control and let aircraft fly headings (or direct to a waypoint). That way it will be easier to keep the correct distance between aircraft.

When the aircraft is close to the airport (and the angle between the course and runway heading is not too great) you can clear the



Runway, centerline and ILS, note that the ILS has a slight offset

aircraft for approach. If it will be a visual landing you can drag the aircraft symbol to the extended runway centre line. If it will be an ILS landing drag the aircraft symbol to the ILS line. The aircraft will now intercept the extended runway centreline (or ILS) and approach the aircraft.

When the runway is clear you can now clear the aircraft to land by dragging the aircraft symbol onto the runway. It will then decelerate and land on the runway. After it has slowed down it will leave the runway and disappear from your screen.

COMBINING DEPARTURES AND ARRIVALS

Departures are relatively easy to handle as they come one at a time (assuming you use only one runway) and there is little chance they come close to each other. Arrivals are more complex as you can have multiple aircraft at the same distance from the runway. You will need to separate them by giving them headings and speeds. If you have departures and arrivals at the same time you will need to keep track of the runway as well. If weather allows get departures and arrivals their own runway (but if they cross make sure you separate traffic!). **And when things get busy you will see that the layout of SIDs and STARs starts to make sense. They are designed to separate traffic and to keep things organised.**

Keeping track of the aircraft type is very important. You need to keep the smaller ones away from the larger ones otherwise wake turbulence will create problems. You might ask a small CRJ or ATR to make a last minute change to another runway but doing the same for a heavy Airbus A380 will result in major problem.

COMMANDS

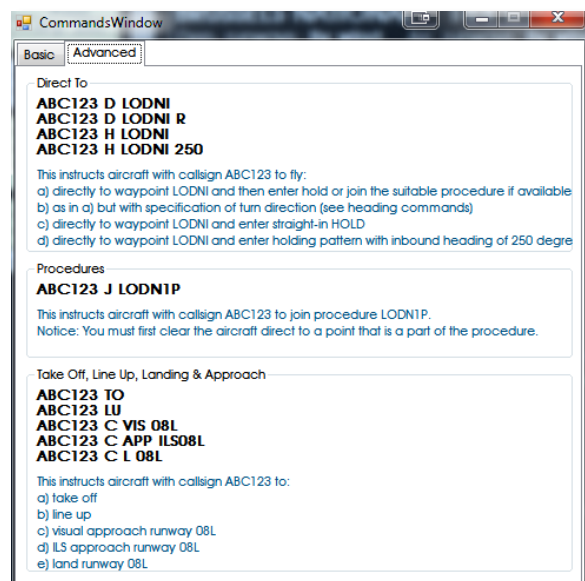
Commands are what makes the simulation work. They are your interface with the pilots who fly the aircraft. The examples in this table are all to an aircraft with the call sign ABC123 obviously.

Command	Parameter	Detail	Sub command	Example
HEADING	000-359	Degrees	None = Shortest turn R = Right turn L = Left turn	ABC123 C H 125 ABC123 C H 125 R ABC123 C H 125 L
ALTITUDE	10-999	Altitude in 100 feet 30=3000 feet 250= 25,000 feet	None = Standard rate of vertical speed X = Expedite the manoeuvre	ABC123 C A 30 ABC123 C A 250 ABC123 C A 250 X
SPEED	0-999	Speed in knots		ABC123 S 230 ABC123 S 160
DIRECT TO AND JOIN			None = Shortest turn R = Right turn L = Left turn	ABC123 D LODNI ABC123 D LODNI R
DIRECT TO AND HOLD	000-359	Inbound heading of holding		ABC123 H LODNI ABC123 H LODNI 250
JOIN PROCEDURE	XXXXXX	Name of procedure		ABC123 J LODN1P
CLEARED TO APPROACH	XXX	Runway identifier		ABC123 C APP 08L
CLEARED TO LAND	XXX	Runway identifier		ABC123 C L 08L
CLEARED FOR VISUAL APPROACH	XXX	Runway identifier		ABC123 C VIS 08L
CLEARED FOR ILS APPROACH	XXX	Runway identifier		ABC123 C APP ILS08L
CLEARED TO LINEUP				ABC123 LU
CLEARED TO TAKE-OFF				ABC123 TO

Commands can be combined like this: ABC123 C A 20, C H 200, S 160, D LODNI. Just use the call sign only once and separate the commands with a comma.

If you want a quick reminder of all commands open the Commands Window. You will find this under the Help drop down menu.

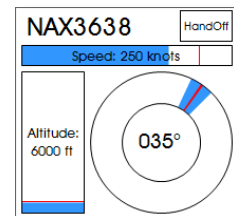
Note that parameters as speed and altitude need to be adapted to the aircraft type. Asking a Twin Otter to fly 250 knots and climb to FL250 will only result in the aircraft go as high and as fast it can fly.



MULTIPLAYER MODE

At a big airport there are often many controllers working at the same time. Some control aircraft on the ground (Ground), some control landing and departing aircraft (Tower) and some control the aircraft that left the airport or are nearing the airport (Approach and Departure controllers). In GATC you can have one (or more) person handle the role of the tower controller and the other party (or parties) controls the aircraft that are departing or arriving. You are free to decide how to handle traffic but normally the tower controller takes control of the aircraft when it is established on the approach. You are not limited to two players, in principle you can combine as many players as you want.

In multiplayer mode the aircraft strip is divided in sections for each player, only the one you control will be expanded with the information on speed, heading, direction and orders. When you left click on the aircraft you get the standard dialog to give orders with the additional option to 'handoff' the aircraft to another controller. When it is accepted the aircraft will move from your aircraft strips to that of the other controller.



You will see the cursor position of the other controller(s) on your screen as a green dot with the name. You can use this to point out parts of the screen to other users, for example the aircraft you are going to hand over or the routing you are going to give an aircraft. Good communication between the controllers is very important!

In this version GATC only supports multiplayer via LAN (Local Area Network, so the network in your home or office) and not via the Internet. Both the computers need to be connected to the same network. There are however ways around this. One very well-known solution is using Hamachi, a software solution to link two computers via the Internet and make them think they are on the same network. Sounds complex, but it's pretty straightforward and the free version works fine with GATC. You will find Hamachi here:

<https://secure.logmein.com/products/hamachi/>

SCENARIOS

Scenarios consist of a start-up situation and a series of instructions. These instructions can be messages, aircraft that appear, emergencies that start, in fact anything that GATC has to offer. Most scenarios included are based in Munich as that airport is included in the demo version.

When you got a scenario running you will see text messages. When these are shown the simulator is paused, when you click on the message it will disappear and the simulator will continue. Do note that you can still issue commands or change settings when the simulator is paused. In scenarios it is often useful to speed up the simulation.

More scenarios will be made available regularly. There will be an editor so users can make and share their own scenarios. Because scenarios use all the standard commands of GATC and they might get some tweaks we decided to release the scenario editor after the release of GATC. This prevents user-made scenarios becoming incompatible when GATC is updated.

DEPARTURE TUTORIAL

This is the best scenario to start with, it's simple, quick and will teach you to depart aircraft.

ARRIVAL TUTORIAL (VISUAL)

The easiest way to land an aircraft is to clear it for a visual landing. We'll land a Twin Otter that way. Feel free to speed up the simulation when things are slow.

ARRIVAL TUTORIAL (PROCEDURE)

In this arrival tutorial the aircraft will fly a complete STAR and Arrival procedure before intercepting the ILS. You will just have to tell it at what altitude to fly and how fast. And of course give it clearance to intercept the ILS and to land!

ARRIVAL TUTORIAL (VECTORS)

In this arrival tutorial you guide an aircraft to the ILS using vectors (the aircraft will not follow a procedure but you will guide it).

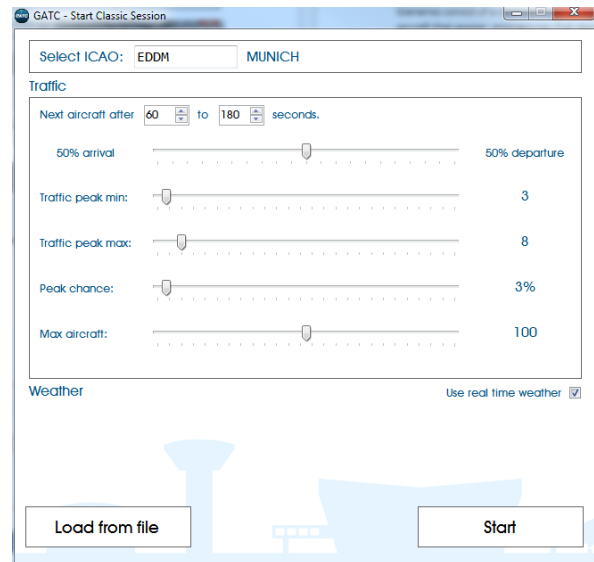
MUNICH HELL

A complex approach problem, you will need some experience to finish this one. One tip, check the aircraft types because there are some slow aircraft in play. If you wonder what a Berliner is... it's kind of a doughnut also known as a Krapfen.

STATES

At any moment during the simulation you can save all data to continue later (or to share it with others) using the File | Save option. You can load these situations from the File | Load option or from the Start Classic Session dialog.

These files are saved in the C:\Users\YourName\Documents\Aerosoft\GATC\States folder. As all files they are standard XML formatted and can be edited if you like to experiment.



TWEAKING THE SIMULATOR

Global Air Traffic Control is built as a completely open system and nearly any parameter can be changed. You can change the way an aircraft type flies (the speed, rate of directional change etc.), what airline flies to what airport and what aircraft an airline has. We have included many data files but they are by definition never complete or 100% accurate. Airlines buy new aircraft and have new destinations. So we hope the users will assist in this and share configuration files.

SOUNDS

You will be notified when a new aircraft holds at the runway or a new aircraft flies into your sector. When an aircraft leaves the runway or leaves your sector you will also hear a sound. All these sounds are stored in the Sound folder and are in standard Windows WAV format. Feel free to replace them and when copyrights allow share them with others.

At this moment a speech interface is not planned. Keep in mind that in real ATC there are also a major change towards a text based interface where voice will only be the backup option!

NAVIGATION DATABASE

This whole simulation is built on databases. There are databases for the aircraft, airlines and above all for the 'world'. The world consists of the airports, the runways, the radio beacons and much more. All this data is stored in a database that is called the Navigation Database. We use a database licensed from Lufthansa Datasystems for that. This same database is used in thousands of airliners, in fact it is the most used navigation database in aircraft. It is 100% real.

These kinds of databases are regularly updated because things change. New airports or runways are opened, radio beacons moved and even things that seem utterly fixed like runway designations can change (as the earth magnetic field changes a runway called 04 might be renamed 05 or 03). You can also update the database for GATC using a product called NavDataPro sold by Aerosoft. This same database is used in dozens of Microsoft Flight Simulator add-ons. You will find a link to this product in the GATC Help menu.

Although not supported by Aerosoft it is also possible to use the Navigraph database. Select the version they created for the Aerosoft Airbus X.

SDK EDITORS

The SDK (software development kit) Editors allows the editing of all configuration files (aircraft, airlines, airports) to make the simulation as realistic as possible. It links airports, airlines and aircraft so that you will see the right type of aircraft with the right type of callsign at the right airport. In other words, you will not see a Fokker 100 from KLM Cityhopper in the USA, but you will see it at Schiphol airport and airports in the region and that you see a lot of Airbus A320 from Lufthansa in Munich and not in Sao Paulo. The SDK editor also allows you to create scenario's that you can share with other users.

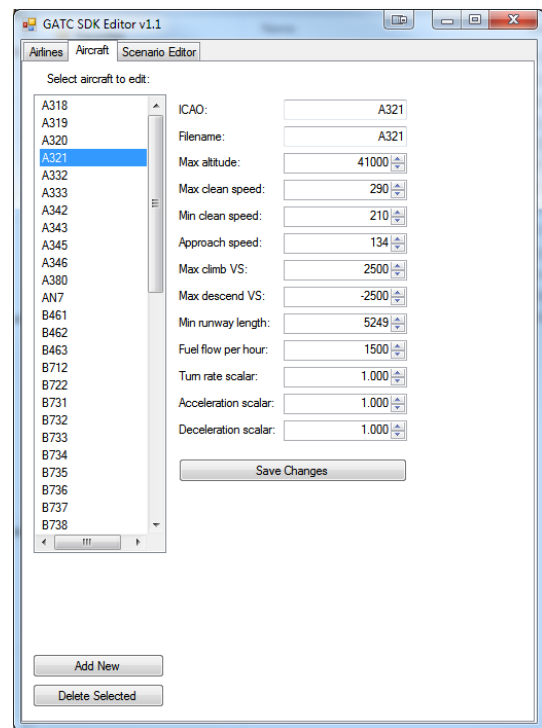
The SDK editors can be found under the HELP dropdown menu. In all editors double clicking an item will allow you to delete it. Note the Airport editor will only appear when you are in CLASSIC mode and have selected an airport!

AIRCRAFT

Aircraft differ. Small aircraft can land on small runways and can turn on a dime while large aircraft need long runways and are not as agile. They also land at different speeds and take more or less time to change speed. The aircraft configuration files contain all the data GATC uses to simulate the aircraft. Most items in this list are self-explanatory. All speeds are used to move the aircraft horizontally and vertically in a realistic manner and the scalars determine how fast any change will happen. The higher the scalar the more quickly the aircraft will change speed or heading. The default setting of 1.000 is for a medium sized airliner, a larger airliner that will turn slower might need a 0.900 value and a small business jet might use a value of 1.200.

The speeds are all indicated air speed (so the speed in relationship to the surrounding air) and not ground speed.

The fuel flow per hour is used to determine how long an aircraft can stay in a holding. For a standard airliner this will be around an hour, then you will have to let it land or it will flame out in the air. To find the correct ICAO code for the aircraft use this list:



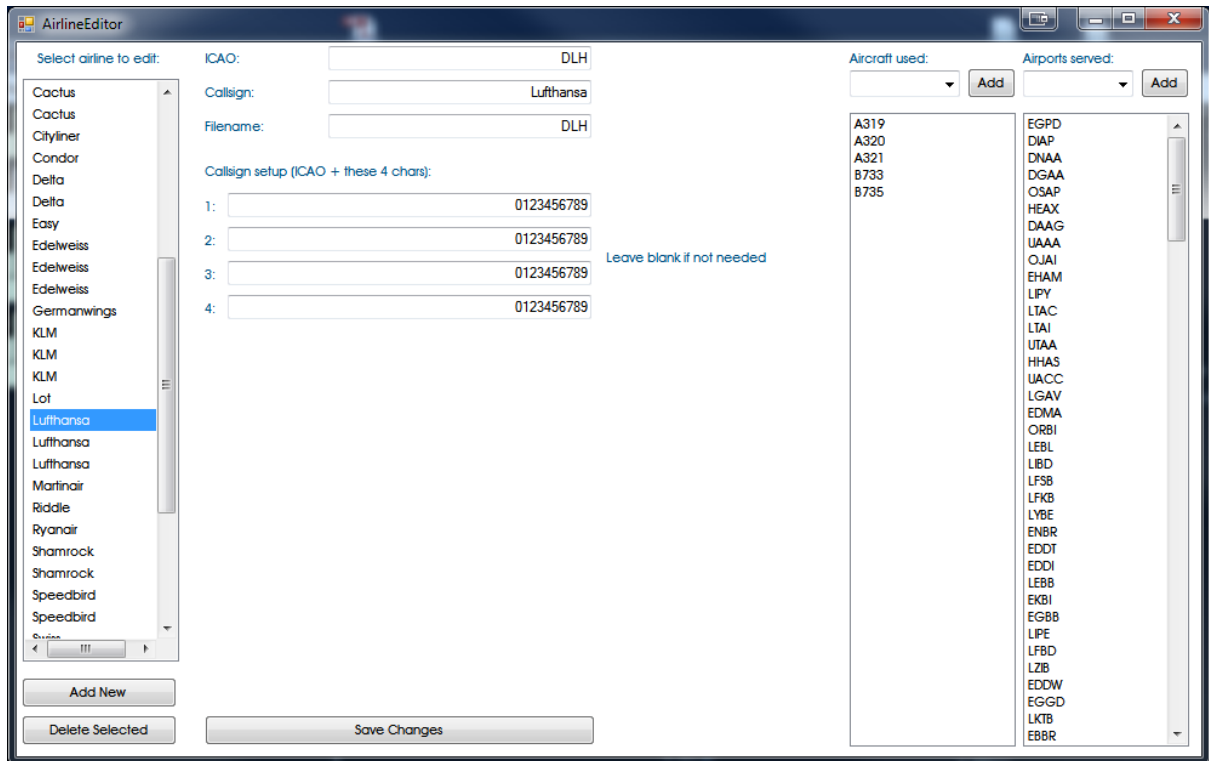
http://en.wikipedia.org/wiki/List_of_ICAO_aircraft_type_designators

If you want to share the configuration files you made we will quickly make GATC even more realistic.

You will find the files in in `\Users\UserName\Documents\Aerosoft\GATC\...` They are in standard XML format. Please upload them to <http://forum.aerosoft.com/index.php?/files/category/49-global-air-traffic-control/> (select the correct subfolder) where we have created a depository for these files. Do not zip them, upload the standard XML. Please use the same naming strategy as the standard files!

AIRLINES

The airline configuration files contain the data for the combination of airline, aircraft and airport served. It tells GATC that the KLM flies with certain types of aircraft, that is most common at Schiphol International airport and that Air France is the most seen airline at the Paris airports. It is possible to add the same airline multiple times, for example to separate long haul and domestic flights. This makes it possible to have the small and medium Air France aircraft fly to the smaller French airports and the big Air France airliners to the USA and Asia.



To find the correct ICAO code for the airlines look here: http://en.wikipedia.org/wiki/Airline_codes

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AIRPORTS

The airport configuration files contain the information related to airports. For example what runways are only used for departures or arrivals, if there are runways that preferred if wind allows (for noise reasons for example) etc. To find the correct ICAO code for the airport look here:

http://en.wikipedia.org/wiki/International_Civil_Aviation_Organization_airport_code

If you want to share the configuration files you made we will quickly make GATC even more realistic. You will find the files in in `\Users\UserName\Documents\Aerosoft\GATC\...` They are in standard XML format. Please upload them to <http://forum.aerosoft.com/index.php?/files/category/49-global-air-traffic-control/> (select the correct subfolder) where we have created a depository for these files. Do not zip them, upload the standard XML. Please use the same naming strategy as the standard files!

GLOSSARY

These terms are not all used in GATC but could come up in discussions.

- **Airways:** Standard routes (like roads) between points. Aircraft follow these from location to location.
- **Approach:** An Air Traffic Control unit responsible for taking airplanes from their routes, directing them towards the airport to a position from where they can actually land. In Germany, this unit is usually addressed as "Arrival". In the U.S., it would be known as a TRACON.
- **Area Control:** An Air Traffic Control unit responsible for controlling enroute air traffic within a specific airspace (called a sector)
- **ATCT:** Airport Traffic Control Tower. A terminal facility that uses air/ground communications, visual signalling, and other devices to provide ATC services to aircraft operating in the vicinity of an airport or on the movement area.
- **Clearance:** Basically, Air Traffic Control's way to tell an airplane what it is supposed to do. If the pilot is lucky, that may even be (remotely) based on what he actually wanted to do in the first place. An example would be an enroute clearance ("You may go to where you want via the route you want to fly along – unless we have a better idea").
- **CLEARED FOR TAKEOFF:** ATC authorization for an aircraft to depart.
- **CLEARED TO LAND:** ATC authorization for an aircraft to land. It is predicated on known traffic and known physical airport conditions
- **Glideslope:** The component of an ILS that provides vertical guidance to the runway.
- **GO AROUND:** Instructions for a pilot to abandon his approach to landing. Additional instructions may follow. Unless otherwise advised by ATC, a VFR aircraft or an aircraft conducting visual approach should overfly the runway while climbing to traffic pattern altitude and enter the traffic pattern via the crosswind leg. A pilot on an IFR flight plan making an instrument approach should execute the published missed approach procedure or proceed as instructed by ATC; e.g., "Go around" (additional instructions if required).
- **GPS:** Global Positioning System
- **Hold, holding:** Basically, letting airplanes fly in circles to delay them (due to weather or problems at their destination aerodrome, for example)
- **IAP:** Instrument Approach Procedure. This can be an ILS or any other procedure.
- **IFR:** Instrument Flight Rules
- **ILS:** Instrument Landing System. This is a set of radio beacons that can guide and aircraft to the runway without any visibility.
- **LOC:** Localizer: The component of an ILS that provides course guidance to the runway.
- **NDB:**
- **SID:** Standard Instrument Departure. A defined route (procedure) that guides an aircraft from the runway to the point where it intercepts the Airways.
- **STAR:** Standard Terminal Approach Procedure. A defined route (procedure) that guides an aircraft from the airway to the airport.
- **UNABLE:** Indicates inability to comply with a specific instruction, request, or clearance.
- **VOR:** Very High Frequency Omni Directional Range. A ground-based electronic navigation aid
- **VRF:** Visual Flight Rules
- **VSBY:** Visibility. The ability, as determined by atmospheric conditions and expressed in units of distance, to see and identify prominent unlighted objects by day and prominent lighted objects by night.