

# AIR TRAFFIC CONTROLLER

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## **OVERVIEW**

This is a simulation that allows you to become an air traffic controller. You have a schedule which shows arrivals and departures from your sector (including takeoffs and landings). It is your job to direct all of the aircraft safely to their destinations.

Your primary equipment consists of a "radar" screen showing the position of all aircraft, airports and any obstacles; a command panel which controls the aircraft's altitude and commands changes in direction; a clock indicating the time that has elapsed during your shift and a timer indicating the remaining time in this "turn".

## **RADAR SCREEN**

The radar screen shows the current positions and headings of all of the planes that are currently under your control. If two or more planes are at the same location only one will appear.

The space between dots on the radar screen is the distance a plane will travel in one 15 second turn.

The radar screen also shows all airports in the sector. Airports are numbered from 1 to 5. The airport headings indicate the direction that all planes must use for takeoffs and landings.

Planes will enter and exit either at one of the eight compass points on the radar screen (N, S, E, W, NE, NW, SE, SW) or at one of the airports. When entering from a compass point, the heading is directly toward the center of the radar screen. When leaving from a compass point, the heading must be directly away from the center of the radar screen. When leaving from an airport, the plane will take off in the proper direction for the airport. When landing, the plane must land in the proper direction.

In addition to airports, the radar screen shows any obstacles that might exist. Obstacles consist of hills which have the height of the hill on their picture and restricted zones. Hills can be flown over with no penalty. You will lose points (one fourth of the plane's value) for every turn you are in a restricted zone.

Planes are normally black on the white background of the screen. If it is selected to receive commands it will appear white on a black background. Planes that are on course to depart per the schedule will show in green, if that option is in effect. Planes in a restricted zone or planes involved in near misses (if that option is in effect) will appear yellow. Planes crashing will be shown in red as the game ends.

## SCHEDULE

The aircraft schedule panel displays the following columns of information for each aircraft:

- Now - Direction and altitude that the plane is currently at (blank until arrival)
- Cmd - Altitude and direction that is currently commanded (blank if no commands in effect)
- In - Location and altitude that a plane will arrive from (blank after arrival)
- Out - Location and altitude that the plane should leave
- Fuel - Time in minutes and seconds of fuel remaining
- Arriv - Arrival time in minutes and seconds (blank after arrival)

The entry for a plane that has yet to arrive will be gray and not able to accept commands. The normal entry for a plane under your control is black. The entry for a plane on course to depart according to the schedule will be green. Entries for planes in a restricted zone or involved in a near miss will show as yellow. The entries for crashed planes will be red at the end of the game. A plane currently selected will show as inverse (typically white on a black background).

### **STATUS DISPLAY**

Beneath the radar screen is the status display. It displays messages indicating that a plane has arrived or departed and whether it departed correctly or incorrectly. It also indicates whether a plane is in a restricted zone or involved in a near miss.

### **SHIFT CLOCK**

The shift clock shows the time elapsed in your shift. You have to guide all planes to their correct destinations before your shift expires.

### **TURN TIMER**

The turn timer shows the time remaining in each 15 second turn. You may click on the turn timer to "speed up" to the next 15 second increment.

### **SELECTING AN AIRCRAFT TO CONTROL**

You can select an aircraft to control in two ways. One is to click on its entry in the schedule. The second is to click on the aircraft's picture on the radar screen. If more than one aircraft is at the location you "clicked" all of their entries will be highlighted in the schedule, however, the controls will not be active until there is only one plane selected. To choose one of the planes highlighted click on its entry in the schedule.



### **GIVING COMMANDS**

**HEADING:** Commands are available to cause the plane to make turns of 45o, 90o, 135o, and 180o to either the right or the left relative to the direction the plane is currently heading. The "straight ahead" arrow cancels all previous direction commands. You may also have the plane make a "U-turn" to either the right or left or to circle continuously to the right or left. Planes turn 45o per turn. It moves at its current heading before turning. A plane turning 90o will move straight then turn 45o.. On the next turn it will again move straight and then turn 45o.

**ALTITUDE:** The altitude command direct a plane to a specific altitude (1000 to 8000 feet). A plane ascends or descends 1000 feet per turn. A plane begins to change altitude immediately after receiving a command. The land button causes a plane to land. It is only active when the plane is lined up with its correct airport and at 1000 feet or if it is commanded to be lined up and at 1000 feet. It is canceled by any other command issued to the plane.

## MENUS

There are menu choices which allow you to start a new game or replay an existing game. You can save the game you are playing. You can not do this while the game is in process. You can only save the initial status of the game. This allows you to replay it should you not complete it successfully. You can also load a previously saved game. Note that only one game can be saved at a time.

High scores are also recorded and there is a menu item to view the current high scores. You may also reset all high scores to zero.

When you are playing the game you may **Pause** it without penalty at any time. Clicking on **Pause** again resumes the game.

## **OPTIONS**

A number of options are provided to modify the difficulty of the game. The options provided are:

**Number of aircraft** on your schedule: This ranges from 5 to 70, in 5 plane increments.

**Number of minutes in your shift**: This ranges from 20 to 80 minutes in 5 minute increments. Note that this does not affect the 15 seconds allowed per turn.

**Number of hills**: This ranges from 0 to 45 in increments of 5. Their placement and height are random, however, they will not be placed so as to directly impede arrivals or departures.

**Number of airports**: Range from 1 to 5. You will always have at least one airport.

**Restricted Zone**: Whether a restricted zone exists and its size. A small zone is 3x3, medium 4x4, and a large one is 5x5. It will be placed so as to not directly impede arrivals or departures. You will lose 1/4th of the planes value for every turn it is in a restricted zone.

**Height of the highest hill**: This can either be 7000 or 8000. If it is 8000 a plane cannot fly over it, but must instead avoid the hills.

**Spacing (Altitude and Distance)**: These to specify how closely planes may fly to each other. If set at one they can be within 1000 feet of each other or directly next to each other. If set to 2 there must be a spacing of 2000 feet or 2 dots (1 dot between them). If set to 3 there must be a spacing of 3000 feet or 3 dots (2 dots between them). You will lose 1/4th of a plane's value for every turn it is involved in a near miss.

**On Course Indicator**: If this option is selected planes on course to their destination or commanded correctly to their destination appear green, both on the radar screen and the schedule.

**Takeoff Penalty**: If this option is selected you will lose 1/8th of the planes value for every turn it is waiting for takeoff at an airport.

The **Done** button indicates you are finished and returns you the main screen to begin playing the game. If you wish to save these options so that you can use them whenever you play the game click on the **Save** button.

### **SCORING**

The options described above modify the number of points you are awarded for directing a plane to its correct destination. You do not lose points if it leaves your sector incorrectly. Letting a plane run out of fuel or crashing a plane, either into a hill or another plane ends the game. Therefore, it is better to let a plane leave your sector incorrectly rather than crash. You lose one fourth of the planes value for every turn it is in a restricted area or for every turn in which it is involved in a near miss. Your points don't count toward the high score unless you successfully complete the game.

