

Acknowledgement

To my family, Irena and dear friends: thank you for your patience and support during development. - Uros

For you Tadej! - Gregor

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1. SYSTEM REQUIREMENTS & INSTALLATION

Minimum system

- 800 Mhz CPU
- 256 Mb RAM
- 64 Mb Direct3D compatible 3D graphics card (32 bit color)
- 600 Mb free disk space
- 800x600 desktop resolution

Recommended system

- 1.5 GHz CPU or higher
- 512 Mb RAM or more
- 128 Mb nVidia or ATI graphics card
- DirectSound compatible sound device
- Force feedback joystick and rudder pedals

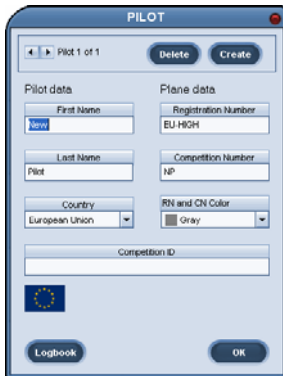
Installation

- Insert Condor CD into CD drive
- Start CondorSetup.exe
- Follow installer instructions

2. USING CONDOR

2.1. First start

The first time you run Condor, you will be prompted to enter data for a new pilot.

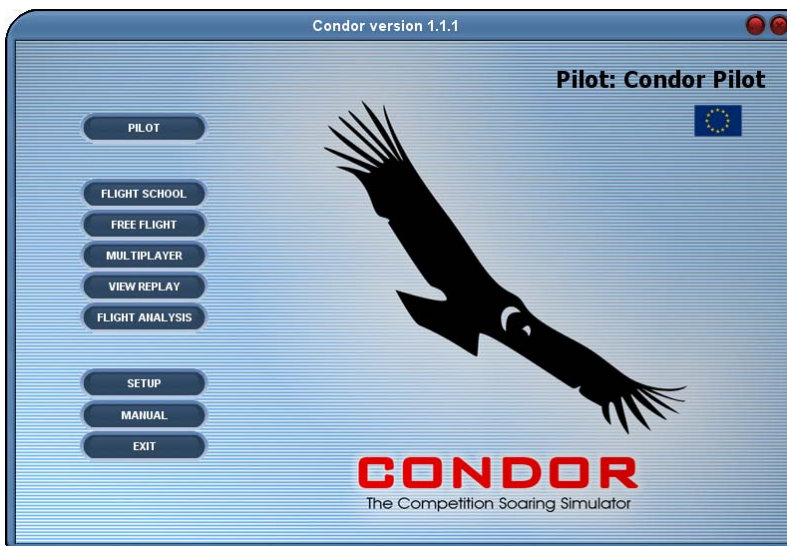
The screenshot shows a window titled "PILOT" with a tab "Pilot 1 of 1". It contains two columns of input fields: "Pilot data" and "Plane data". Under "Pilot data", there are fields for "First Name" (containing "John"), "Last Name" (containing "Pilot"), "Country" (a dropdown menu showing "European Union"), and "Competition ID". Under "Plane data", there are fields for "Registration Number" (containing "EU HIGH"), "Competition Number" (containing "NP"), and "RN and CN Color" (a dropdown menu showing "Gray"). At the bottom left is a "Logbook" button and at the bottom right is an "OK" button. A small European Union flag is visible in the bottom left corner of the window.

New pilot

Pilot's name will be used in multiplayer, replays and flight tracks. Registration number appears on plane's fuselage and on the lower side of the left wing. Competition number along with country flag appears on plane's vertical stabilizer.

When you click OK, you enter the main menu.

2.2. Main menu



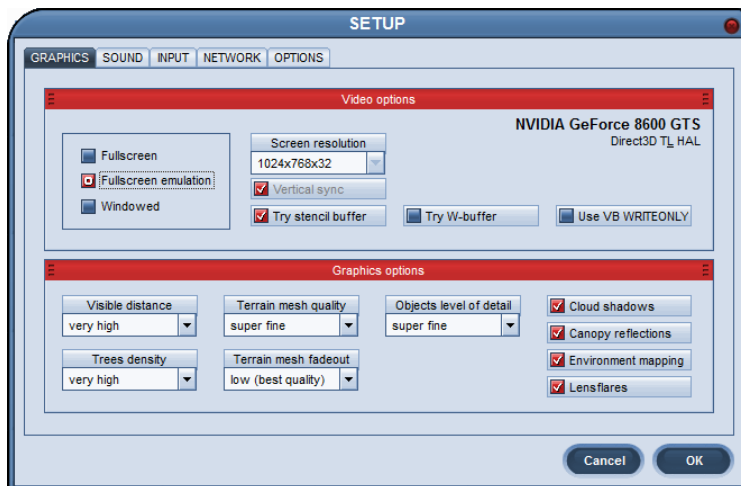
Main menu

On first run you must register your copy of Condor by clicking REGISTRATION and entering your License Key. Keep your License Key safe in a secure place in case you should reinstall Condor later.

The next thing you should do is setup your hardware. Every pilot has his own settings. When you press SETUP button, you can alter settings for the current pilot.

2.3. Setup

2.3.1. Graphics



Setup - Graphics

Fullscreen: Fullscreen graphics mode. If you need desktop switching during the game (ALT-TAB), you should use windowed mode as Condor doesn't support desktop switching in fullscreen mode.

Fullscreen emulation [recommended]: This is basically a windowed mode with the window extended over the whole screen area and Windows taskbar removed. The task switching functionality is fully supported.

Windowed: With windowed mode you can set the dimensions of Condor window and you have full support for task switching.

Screen resolution: Select in-game screen resolution. Higher resolutions require better graphic card but not higher CPU power. Only 32 bit color is supported so make sure you use 32 bit color for your desktop if you run Condor in windowed mode.

Vertical sync: When using fullscreen mode, you can synchronize game refresh rate with monitor refresh rate. Use this option only if your game refresh rate is higher than monitor refresh rate.

Try stencil buffer: This option affects shadows transparency. It should be left checked. Uncheck only if you're having problems initializing Direct3D or if you have graphic artifacts (when stencil buffer is not supported by your hardware)

Try W buffer: This option determines the type of depth buffer used by Condor. By default, it is unchecked and Z-buffer is used. Check this option if your video card supports W buffer (some Nvidia cards), as it provides better depth sorting. If you are experiencing depth sorting problems, leave this option unchecked.

Use VB WRITEONLY: Enabling this option is only recommended if you experience extreme game stutter. Don't use on Windows Vista or Windows 7 with an nVidia card! Game crash is extremely likely!

Visible distance: Select visible distance. Higher values require more CPU power. Medium option is recommended for most systems.

Trees density: Select density of trees. Higher values require more CPU power. Medium option is recommended for most systems.

Terrain mesh quality: Choose geometric quality of the terrain. Super fine is recommended for most systems. Choose lower quality only if you have an old graphics card (GeForce 2 or lower)

Terrain mesh fadeout: Choose how the terrain mesh quality degrades with distance. Low (best) is recommended for most systems. Choose higher fadeout only if you have an old graphics card (GeForce 2 or lower).

Objects level of detail: Choose how the level of detail of objects (planes etc.) degrades with distance.

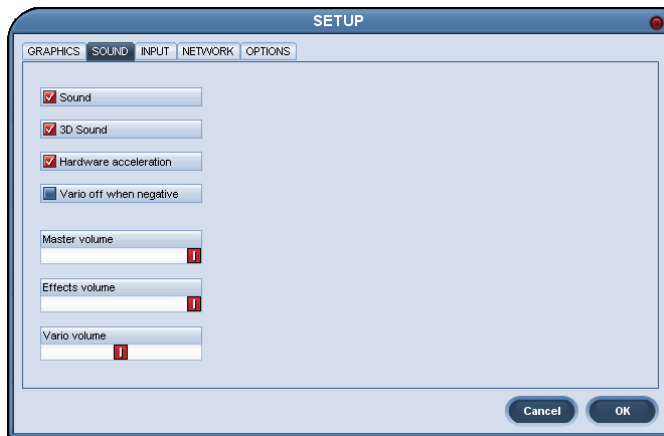
Cloud shadows: Simulates cloud shadows on the terrain.

Environment mapping: Simulates reflections on glossy surfaces of the glider.

Canopy reflections: Simulates reflections on the canopy surface in the cockpit.

Lensflares: Simulates lens flares when using outside views.

2.3.2. Sound



Setup - sound

Sound: Toggle in game sound (useful for debugging)

3D Sound: Toggle in game 3D sound (useful for debugging)

Hardware acceleration: Use hardware sound acceleration (useful for debugging)

Vario off when negative: Variometer beeps only in lift

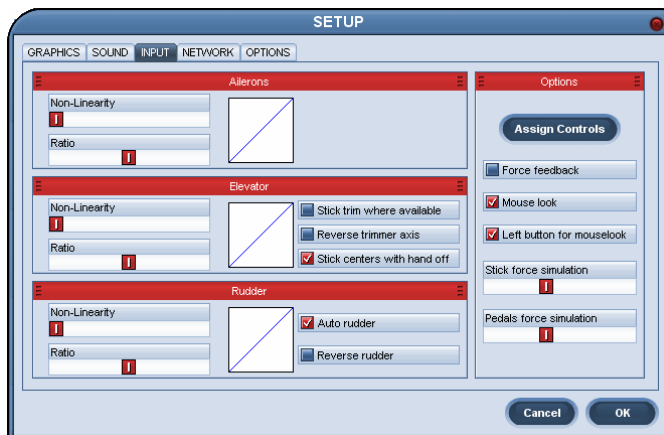
Master volume: Affects volume of all sounds in the game

Music volume: No effect (there is no music in Condor yet)

Effects volume: Affects in-game effects volume

Vario volume: Affects variometer volume (can also be adjusted in game)

2.3.3. Input



Setup - input

You can choose non-linearity and ratio for all three plane axes. The graph on the right shows the input device to control surface mapping when you move the sliders.

Non-linearity: Higher values produce less responsive commands in the center of your device, however maximum deflections remain the same.

Ratio: Higher values produce more responsive commands, but saturate before you reach maximum deflection. Lower values produce less responsive commands and also lower maximum deflections.

Stick trim where available: Check this option to simulate normal trimmer on planes with stick trimming.

Reverse trimmer axis: Reverse the trimmer axis.

Stick centers with hand off: Pilot stick is centered because of airflow when the right hand is not holding it, for example when dropping water or raising gear.

Auto rudder: Enable automatic rudder.

Reverse rudder: Reverse the rudder axis.

Force feedback: Recommended for force feedback devices. Has no effect when using non-force feedback devices.

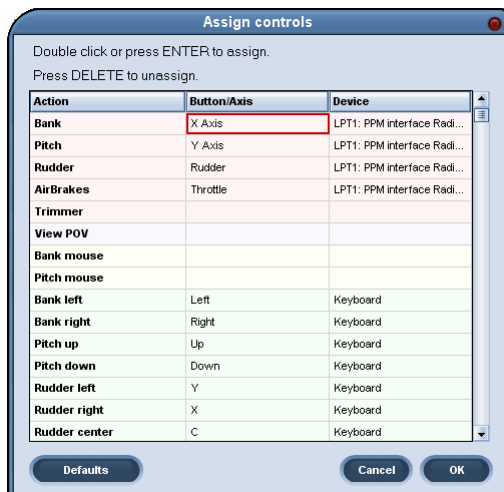
Mouselook: Used to control cameras with mouse. You should disable this option or enable “left button for mouselook” when using mouse to control the pilot stick.

Left button for mouselook: You will have to press left mouse button to control cameras with mouse. Use this option when using mouse to control the pilot stick.

Stick force simulation: With this option Condor can use lag in command response to simulate pilot stick forces. Higher values produce more lag. Lag also increases with plane speed. This option can also be used to smooth out jerky input of some joysticks.

Pedals force simulation: Analog to stick force simulation.

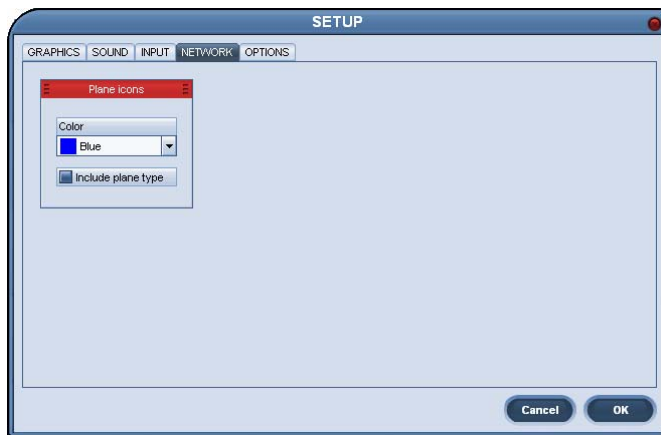
Assign controls: Pressing this button allows you to reassign every control in Condor from default buttons/axes to your custom buttons/axes.



Setup – Input - Assign controls

To delete an assignment, click an action and press DELETE key. To assign, double click an action and move an axis, press a button or move the view hat. You can't assign multiple buttons/axes to the same action. You can restore the default mappings with the Default button.

2.3.4. Network

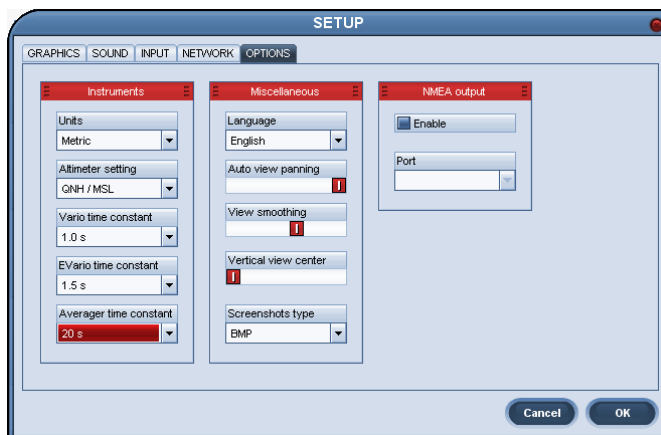


Setup - network

Color: You can select a color for plane icons. Plane icon is textual information of the plane that is shown in game along with the plane.

Include plane type: Include plane type in plane icon text

2.3.5. Options



Setup - options

Units: Select metric/imperial/Australian units used in menus and in game

Altimeter setting: Select QNH or QFE altimeter setting. Fine adjustment of the altimeter is also required in game before each flight because of air pressure changes.

Vario time constant: Select pneumatic variometer time constant. Lower values indicate shorter response times, higher values indicate longer response times.

EVario time constant: Select electronic variometer time constant. Maybe the best solution is to set a fast pneumatic variometer and a slower electronic variometer.

Averager time constant: Select averager time constant. Averager is a special variometer with very long response time that “averages out” small variations in vertical movement and reports “average” lift.

Language: Select your language. Additional languages are available for download at www.condorsoaring.com. If you would like to translate Condor to your language and the translation is not yet available, please follow the instructions at our website.

Auto view panning: Condor can pan your view direction according to plane movement

direction. The lowest value results in strait forward view – no panning, higher values result in more panning.

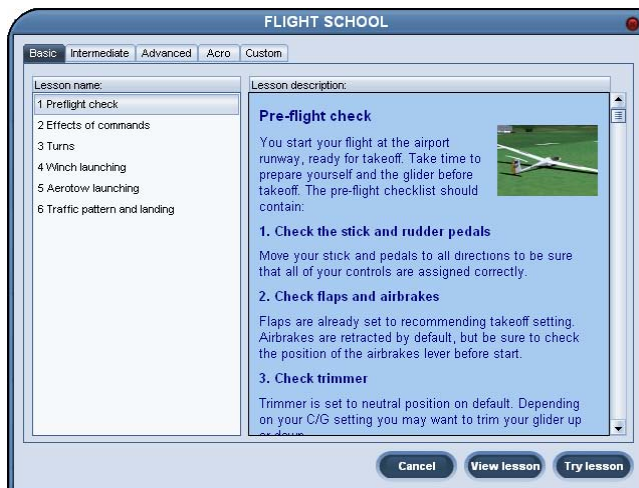
View smoothing: The level of camera movement smoothing.

Vertical view center: You can set the pitch of the pilot's view in F1 camera.

Screenshots type: Select between JPG and BMP format for screenshots taken during the game. Select BMP for higher quality, but much bigger images.

NMEA output: You can enable NMEA output to one of your serial ports and connect a Palm, PocketPC or other navigation hardware that supports NMEA.

2.4. Flight school



Flight school

The purpose of flight school is to provide all necessary information to teach you how to fly, how to soar and how to compete in soaring.

Flight school is based on lessons. After you read lesson description you can view the lesson with “View lesson” button. The instructor will guide you through the lesson with comments on top of the screen. When you feel ready, you can try the lesson yourself by clicking “Try lesson” button.

The lessons are divided into five groups:

2.4.1. Basic

The basic level will teach you how to fly. It is recommended to start with the Basic level even if you feel it's too easy for your knowledge. The reason for this is that the basic lessons will also teach you the keys and commands that are essential to fully exploit Condor.

2.4.2. Intermediate

Weather is the motor of soaring flight. The main purpose of intermediate level is therefore dedicated to teach you how to use weather for soaring.

2.4.3. Advanced

Here you will learn how to use your knowledge of soaring to successfully take part of competitions. Good soaring techniques are essential but not all you need to be fast. This lesson will therefore also teach you how to optimize your flight in lift and between lift and how to use modern instrumentation to navigate and round turnpoints efficiently.

2.4.4. Acro

Acrobatic lessons for advanced pilots.

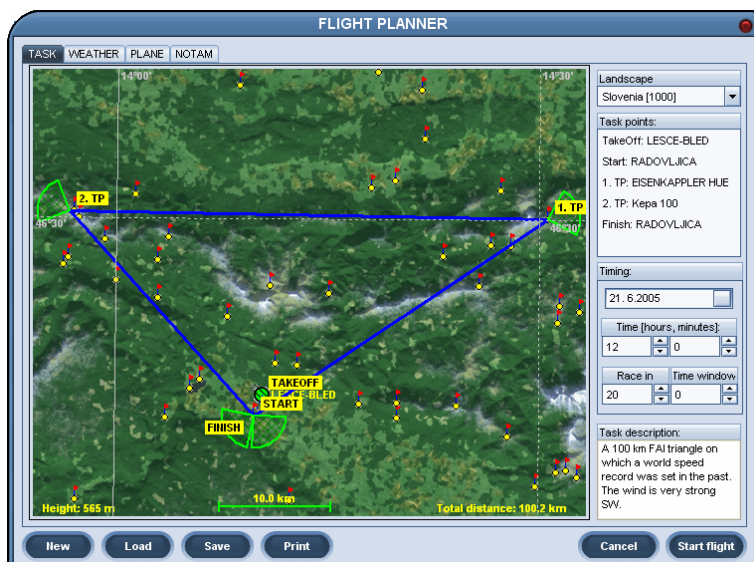
2.4.5. Custom

Custom lessons.

2.5. Free flight

Free flight or single play mode starts with Flight planner, where you define every aspect of your flight. When you define your flight plan, you can save it to file and load it later. You don't need to manually save your last flight plan as it saves automatically and then loads the next time you enter Flight planner.

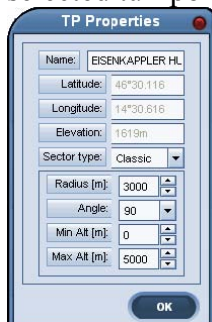
2.5.1. Task



Flight planner - Task

In this tab you define your flight task. You do this by selecting your take-off airport and then continue adding turnpoints with you mouse. One way to stop adding points is to select your start or takeoff point again. Another way is to bring up the popup menu with right click and to select **Finish task**.

When the task is defined, you can move turnpoints by dragging them to a new position. If you want to insert a turnpoint, just hold CTRL and drag an existing turnpoint to a new position. Another way is to bring up the context menu with right click and selecting **Insert**. If you want to remove a turnpoint, select **Remove** from context menu. You can change the properties of selected turnpoint by selecting **Properties** from context menu.



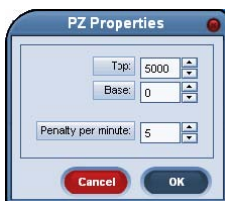
Turnpoint properties

Condor uses two sector types that you can assign to turnpoints: **classic type** and **window type**. If you select classic type, the turnpoint rounding will be successful if you fly trough the sector zone. You can specify sector radius, sector angle, minimum and maximum height.

Window type sector is actually a window that has to be flown through for successful turnpoint rounding. You can specify its center altitude, width, height and azimuth. Azimuth is the direction in which the pilot has to fly through the window.

Note: It's quite difficult to round window type sector, especially without 3D task helpers enabled. It's therefore recommended to use classic type sectors for beginners.

Condor also allows you to specify **Penalty zones**. These are user defined areas in the airspace that are prohibited to enter. If the pilot enters one of these zones, he gets penalty points. You define a new penalty by clicking New -> Penalty zone from the context menu that you bring up with mouse right click. Then click on the map three more times to finish the penalty zone. When the zone is defined you can drag its corners with your mouse. To change the properties of the penalty zone you first have to select it by moving the mouse inside the zone. Then bring up the context menu and click Properties.



Penalty zone properties

Here you define the bottom and the top of penalty zone and amount of penalty points that the pilot gets every minute when flying in the zone.

To delete the penalty zone you first have to select it and then click Delete from context menu.

Start time: Here you specify the day time of simulation start (hours, minutes).

Race in: Here you specify how long after last tow the race starts (minutes).

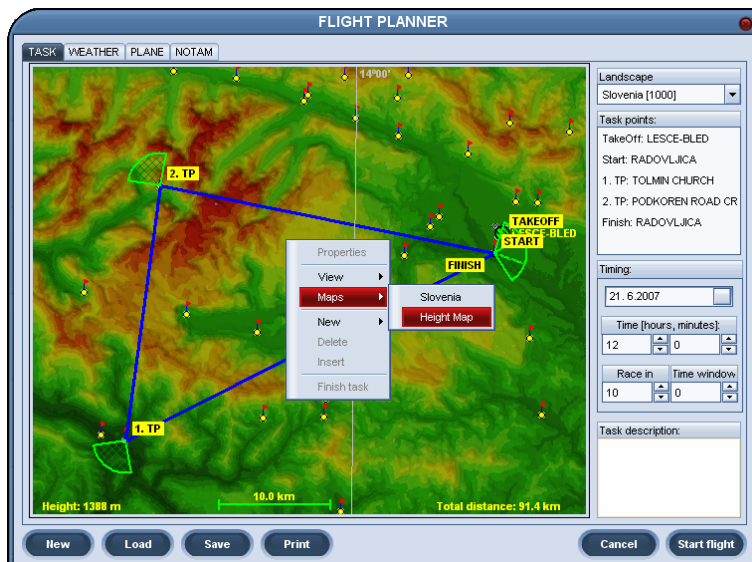
Time window: The pilots can start the task in specified time window after the race starts. If you set time window to 0, the start will be regatta type – all pilots start at the same time.

Task description: Here you can write a textual description of the task.

Shortcuts:

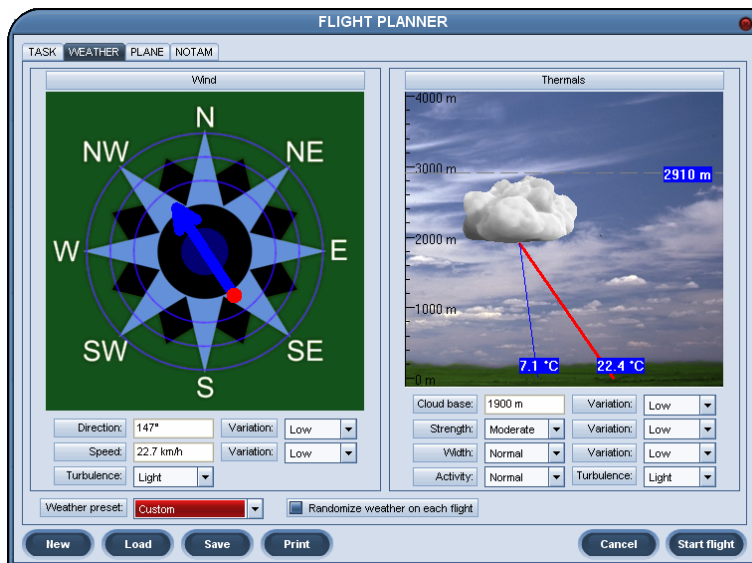
- Zoom in/out: press SHIFT key together with left or right mouse click to zoom in/out.
- Insert turnpoint: press CTRL key and drag the selected turnpoint to insert a new turnpoint after the selected turnpoint.

Custom landscape maps: You can create or download custom landscape maps for the scenery area. Just put a custom bitmap with the same dimensions as original LandscapeName.bmp file to Condor/Landscapes/LandscapeName directory (LandscapeName is the actual name of the scenery). In Flightplanner, right click, select Maps and choose your preferred custom map. The map used in flight planner will also be used on your PDA navigational screen.



Flight planner – Task – Maps

2.5.2. Weather



Flight planner - Weather

This tab allows you to define weather for your flight. You can choose one of the Weather presets in the lower left corner. If you choose Custom, you will be able to change all weather settings manually.

Wind panel

Click on the wind rose to select wind speed and direction. Hold CTRL key to get more course directions and speeds. The wind you define in this way is synoptic wind and defines general wind speed and direction. Condor then computes wind speed and direction according to altitude, terrain etc.

Direction variation: Here you specify the amount of daily general wind direction variation.

Speed variation: Here you specify the amount of daily general wind speed variation.

Turbulence: Here you specify the general amount of mechanical turbulence caused by wind. Mechanical turbulence is then computed according to this setting, wind speed, terrain etc.

Note: Among wind shift, wind also influences slope and wave updrafts.

Thermals panel

The image shows a graphical representation of cloud development. The cloud base is dependent on surface temperature and dew point. You can alter temperature and dew point by dragging them left or right. The cloud base changes accordingly.

You can also change the height of the inversion layer (subsidence inversion) by dragging the label up and down. If the inversion layer is above cloud base, cumulus clouds will form. If you set the inversion layer below the cloud base, only blue thermals will form.

Note: Thermals have some persistence and will not stop immediately after reaching the inversion height.

Cloud base variation: You can specify the spatial variation of cloud base. If the variation is low, the clouds will have nearly equal cloud base height. If the variation is high, cloud base heights will be more scattered.

Strength: Here you specify general strength of the thermals. The strength also depends on cloud base height. The higher the cloud base, the stronger are the thermals.

Strength variation: Here you specify the strength variation between individual thermals. If the variation is low, all thermals will have nearly equal strength. If the variation is high, strength difference between thermals will be high.

Width: The width of the thermals.

Width variation: Width variation of the thermals.

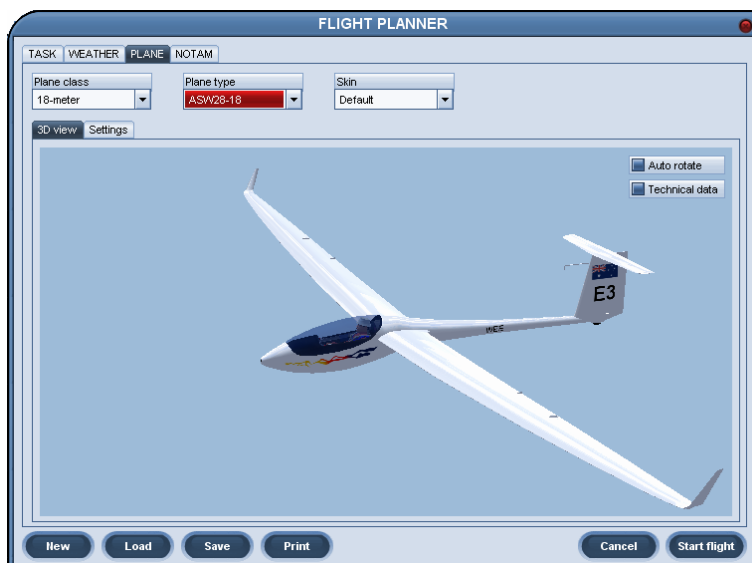
Activity: The activity (number) of thermals.

Turbulence: Here you specify the turbulence caused by thermals. Thermal turbulence also depends on thermal strength.

Note: The frequency of thermals depends on cloud base height. Lower cloud base causes more frequent thermals and vice versa.

Randomize weather on each flight: On every flight, the weather will be randomized within the weather preset limits.

2.5.3. Plane



Flight planner - Plane

In this tab you choose the glider and alter its settings.

Plane class: Here you define FAI competition class.

Plane type: Here you define the type of the glider.

Skin: Here you define the skin of the glider.

Note: Skins are custom paint schemes. Read more about skins and how to use them at Condor's website (www.condorsoaring.com).

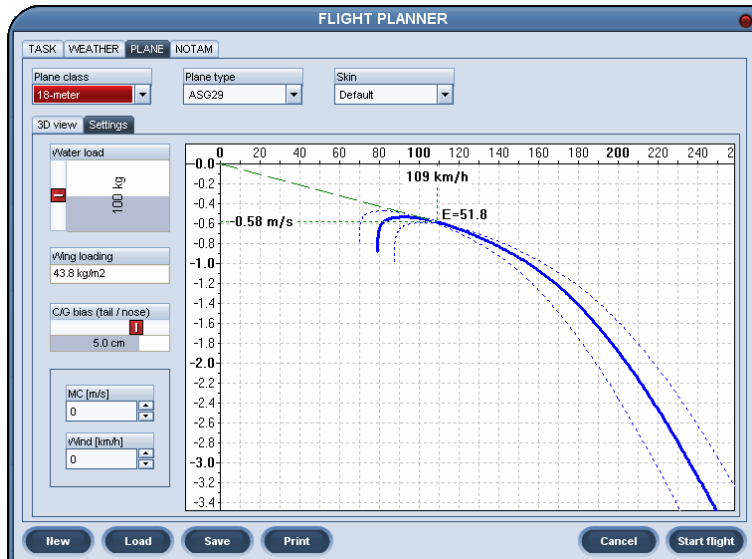
3D view

You can rotate and zoom the glider by dragging with left or right mouse button.

Auto rotate: Here you choose if the glider rotates automatically.

Technical data: Show basic technical data of the glider.

Settings



Flight planner – Plane – Settings

In this sub-tab you can see the speed polar of your glider. The thick blue line represents the polar with current water ballast amount. The dotted lines represent the polars for no water ballast and for full water ballast respectively.

Water load: Here you specify the water load amount. The speed polar changes accordingly. Please note that when Club class is selected, water is not allowed. If you would like to fly club class planes with water, you must select them from All class.

C/G bias: Here you specify the relative position of your plane's center of gravity (C of G). The influence of this setting on performance is very small. The more important effect is glider handling.

MC: This setting does not influence your flight in any way. It's provided to visualize the effect on optimal glider speed.

Wind: See MC.

Note: For more information on glider speed polars and settings see Flight school's advanced lessons.

2.5.3.1. Plane packs

Condor originally offers 13 gliders across the major gliding classes, from school class to open class. This is enough for the new pilots to learn soaring and also for the ambitious pilots to enjoy the thrills of competition soaring.

Of course, the default selection of planes, even though not small, is still not enough to satisfy all pilots. Some would like to fly their favorite real life glider, some would like to try out the hottest new ships for the fraction of their real life cost and also some would like to experience the early days of soaring with an old, wooden glider.

We have therefore decided to periodically release new types of gliders in so called plane packs. Each plane pack will include around 5 new gliders. The selection of planes will be mostly based on their popularity and user demand. Users can express their wishes at our planes forum or even try to create the 3D model of their favorite glider which can then be finished by us and included in one of the plane packs.

Why no 3rd party planes for Condor?

Condor uses an advanced flight dynamics model which demands a lot of accurate input data for every plane. To assure realistic flight characteristics of the planes, the data must meet our quality standards and must be critically reviewed and adapted to our flight model. We are convinced this can only be achieved by having a thorough understanding of the internals of Condor's physics model.

That's why we have decided not to allow the development of 3rd party planes for Condor. It would result in potentially nice looking gliders but with unrealistic and uncomparable flight characteristics which would ruin the soul of Condor which is fair, realistic simulation of competition soaring.

We have, however, given users the possibility to design the 3D models of the gliders they would like to see in Condor. With some knowledge of 3D modeling, with our cooperation and feedback, it is possible to build the glider to the phase where we take it over and finish it. We add pilot animations, moving surface animations, instrument panel gauges, textures, flight model and, if required, custom sounds. The plane then goes to testing to our beta team and when all errors are fixed, it's ready to be released in one of the plane packs.

What is the cost?

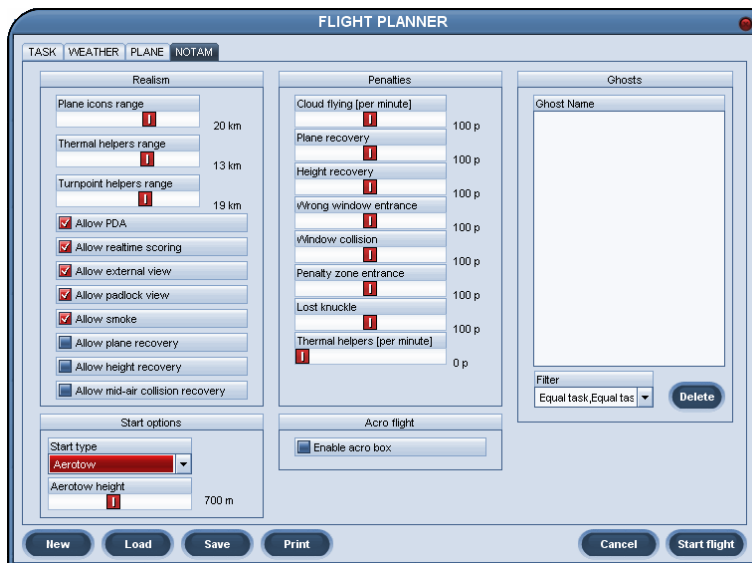
We're sure you understand creating high quality planes is not a quick and easy task. It's a lot of work so we decided to charge a small fee for the plane packs. We have kept the price down so plane packs should be accessible to the majority of Condor users. We hope the price of approximately two movie tickets is reasonable for 5 new quality gliders for Condor.

Installing and activating plane packs

After you purchase the plane pack, please shut down Condor before installation. When the installation is done, you can activate the plane pack in Condor by pressing the Activate button in the PLANE tab of the flight planner and entering your plane pack license key that you got during the ordering process. Please make sure you are connected to the internet as the validity of the key is checked online at our servers.

Note: More information on plane packs is available at Condor's website (www.condorsoaring.com).

2.5.4. NOTAM



Flight planner – NOTAM

In this tab you define various flight options.

Realism settings

Plane icons range: Select how far you see icons of other planes. To turn icons off, move the slider all the way to the left.

Thermal helpers range: Select how far you can see thermal updrafts as visual puffs. To turn off thermal helpers, move the slider all the way to the left.

Turnpoint helpers range: Select how far you can see turnpoints as vertical stabs and other visual task indicators like penalty zones. To turn off turnpoint helpers, move the slider all the way to the left.

Allow PDA: Check this checkbox to allow the use of PDA in the cockpit of modern competition gliders. With this option disabled, you will also have to make a photo of each turnpoint from the turnpoint sector. Left wing must be visible in the photo.

Allow real time scoring: Check this checkbox to allow pilot to display the real time scoring during the race.

Allow external view: Check this checkbox to allow the pilot to use external cameras.

Allow padlock view: Check this checkbox to allow the pilot to automatically pan the view in direction of other pilots.

Allow smoke: Check this checkbox to allow the pilot to use smoke trails on wingtips.

Allow plane recovery: Check this checkbox to allow the pilot to recover the plane damage from mid-air collision or structural damage.

Allow height recovery: Check this checkbox to allow the pilot to gain 500 m of height instantaneously.

Allow midair collision recovery: Check this checkbox to allow the pilot to recover the plane damage after mid-air collision.

Start options

Start type: Choose from aerotow start, winch start or airborne start

Aerotow/airborne height: Specify the height of the aerotow or the starting height when starting airborne.

Rope break probability: Specify the probability of the rope break during winch launch

Penalties

Penalty points are directly deducted from player score. You can specify the number of penalty points imposed for various infringements.

Cloud flying: Specify the number of penalty points for every minute flying in clouds.

Plane recovery: Specify the number of penalty points for recovering damaged plane

Height recovery: Specify the number of penalty points for height recovery

Wrong window entrance: Specify the number of penalty points for wrong direction of window type turnpoint rounding.

Window collision: Specify the number of penalty points for collision with turnpoint window borders.

Penalty zone entrance: Specify the number of penalty points for entering penalty zone. You also get penalty points when flying in penalty zone according to penalty zone properties setting.

Lost knuckle: Specify the number of penalty points for losing one tail knuckle.

Thermal helpers: Specify the number of penalty points for every minute of using thermal helpers.

Note: For more info on “tail knuckles” see Multiplayer in this manual.

Acro flight

Enable acro box: Check this checkbox to see acro zone and ground marks.

Ghosts

Ghosts are recordings of your or other people flights. In this panel you can select ghosts to escort you during your flight.

Filter: You can filter out the ghosts with different flightplan settings.

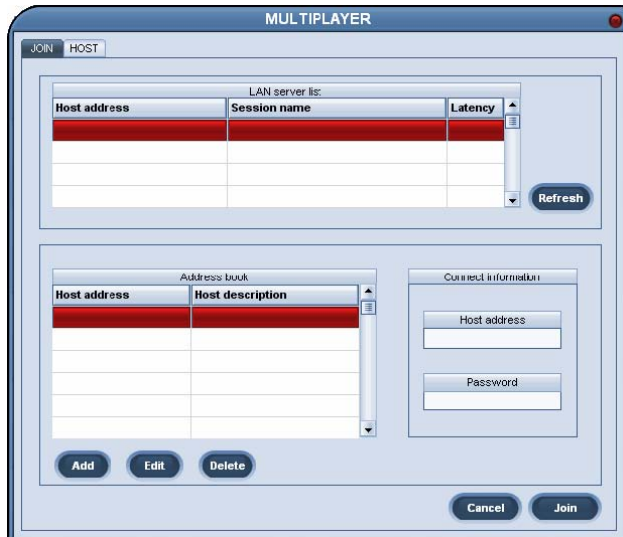
Note: Technically ghosts are flight track files (.ftr). You can save your flight track in debriefing screen.*

Click **Start flight** to start the flight.

2.6. Multiplayer

Multiplayer allows you to fly or compete with other pilots using a LAN or Internet connection. You can join to an existing Condor server or you can host a game yourself.

2.6.1. Join



Multiplayer - join

LAN server list

If you would like to connect to a LAN server, you can use LAN server list to see the servers currently running on your LAN. Just click refresh to populate the list. Double click on the server to connect.

Address book

Address book is used to store server addresses that you often connect to. You can store LAN or internet servers. Double click on the server to connect.

Connect information

To connect to a new server, enter host address in the “Host address” field and click Join. Host address can be an IP address or an URL address. To connect to servers that are password protected, enter the password in the “Password” field.

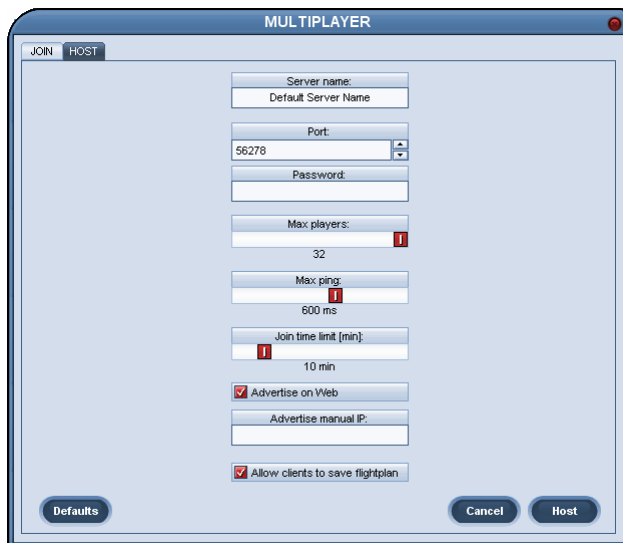
Note: If for some reason a LAN server does not appear on the “LAN server list”, try connecting to it by explicitly entering host address in the “Host address” field.

When you join to the server, you will automatically receive the flight plan from the server and enter Flight planner. The settings in Flight planner are set by server and can not be changed, except for your plane settings.

Notes: Only planes from server defined plane class can be selected. If server creates a teamplay race, you must also set your team in Planes tab.

In Chat tab you can see the list of connected players and chat with them. Click **Join flight** to start the flight.

2.6.2. Host



Multiplayer - host

Hosting a server can require a high amount of bandwidth. This is usually not a problem on LAN connections. But if you intend to host an internet game, be sure to have a fast and reliable ISP connection, especially if you expect a lot of pilots to join.

Note: When you host a game, players from LAN or from internet can connect at the same time.

Server name: Here you specify your server name (not address), that is visible to connecting players.

Port: Set the port that the server will use to host the game.

Password: Set the password if you wish that only players that know it can connect to your server.

Max players: Set the maximum number of players that can connect to your server. More players require more bandwidth.

Max ping: Set the maximum ping to prevent players with bad internet connection to spoil the party by warping.

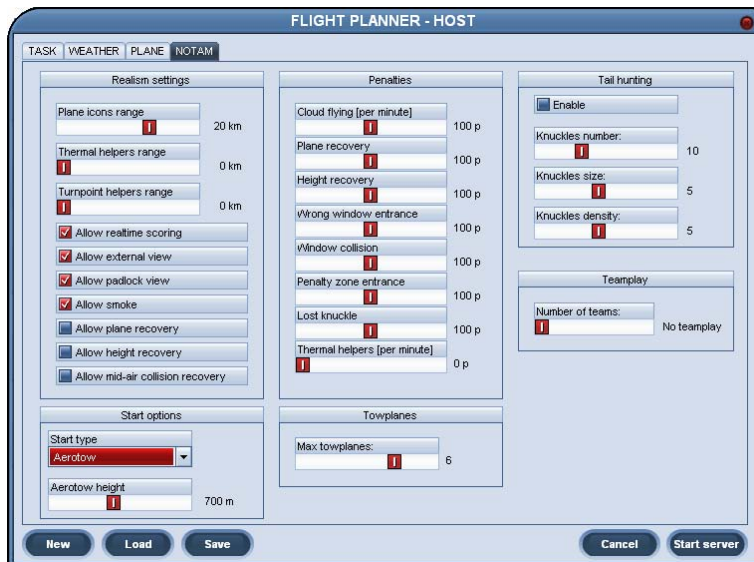
Join time limit: Here you specify how long new players can connect to game (minutes). This option is only used in multiplayer.

Advertise on web: Here you specify if the server description is advertised on the Servers list of the Condor website.

Advertise manual IP: If your IP address is not correctly propagated to the Servers list, you can manually enter the IP that will be advertised on the Servers list.

Note: By default, Condor uses port 56278. Do not alter this setting if you don't need to. For more information on ports, firewalls, NATs etc. visit Condor's website at www.condorsoaring.com.

When you click **Host**, you will enter Flight planner. Define the flight plan for the hosted game as you would in free flight mode. There are, however, some changes in NOTAM tab.



Flight planner - host - NOTAM

Towplanes:

Max towplanes: Set the maximum number of towplanes.

Tail hunting

Tail hunting is used to variegate multiplayer flying. If you enable it, every plane will trail a tail of knuckles. You will get penalty points if other pilots eat your knuckles.

Enable: Check this checkbox to enable tail hunting.

Knuckles number: Set the number of tail knuckles.

Knuckles size: Set the size of the knuckles. The bigger the knuckles, the easier it is to “eat” them.

Knuckles density: Set the density of the knuckles. Higher values mean higher density or less space between knuckles and vice versa.

Teampay

In teampay, every pilot will be part of a team and the winning team will be the one with the highest score. The team score is computed as an average of scores of all players within the team.

Number of teams: Here you set the number of teams. If you don’t want to use teampay, drag the slider all the way to the left.

Click **Start server** to start the flight.

2.7. View replay

Every flight can be recorded and viewed later. You save the replay of your flight in debriefing room after flying. Replay files have the extension 'rpy' and are saved in '/Replays' subdirectory of your Condor installation directory.

Note: Multiplayer flights can currently not be recorded.

You can also get replays from other pilots, put them into your /Replays directory and view them. To view a replay, click on View replay in the main menu.



View replay

Player filter: Only replays from selected pilot will be shown. If you want to view a complete list of replays in /Replay directory, then specify 'All pilots'.

File name: Filtered list of *.rpy files in /Replay subdirectory.

Length: Length of the replay.

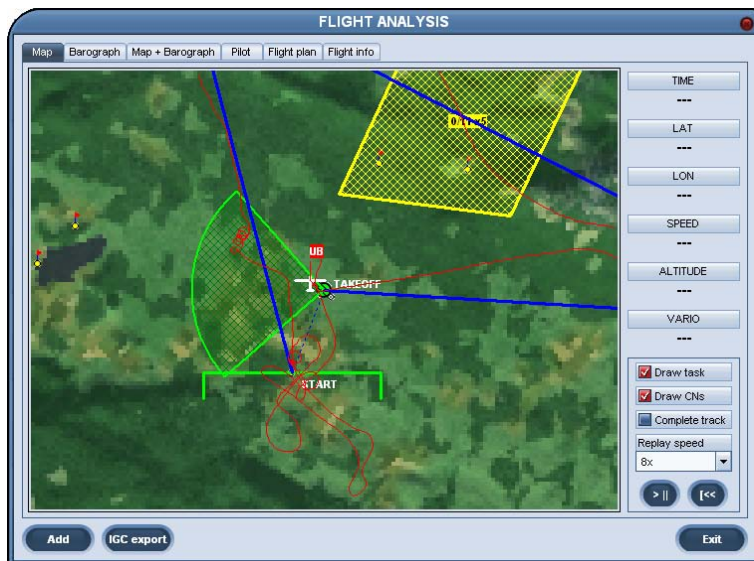
Replay details: Replay details.

View ghosts saved with replay: View ghosts that were saved with replay.

Click **View** to view the selected replay.

2.8. Flight analysis

You can analyze your flight after flying by clicking **Analyze flight** from Debriefing menu or analyze saved flights by clicking **Flight analysis** in Main menu.



Flight analysis

Just press play button and the plane icon will move along your flight path. You can also view your height recording in Barograph and Map + Barograph tabs. In the statistics tab you can see detailed information of the flight.

Draw task: Draw the task legs, turnpoints and sector

DrawCNS: Draw the competition numbers of the planes

Complete task: Draw complete track. The track you already traveled is drawn with a thicker line.

You can save your flight to 'flight track file' (*.ftr) format by clicking **Save** button (only available when analyzing flight in debriefing room). You can add multiple flight track files and analyze them at the same time by clicking **Add** button. If you would like to export flight tracks to IGC format and view them with an external IGC file viewer, click **IGC export**.

Flight track files are stored in 'FlightTracks' subdirectory of your Condor installation directory. They can be shared with other pilots or used as ghosts. They can also be used as a proofing tool for successful task completion or record flights.

3. SOARING HANDBOOK

3.1. Introduction to soaring

Soaring is one of the purest forms of flying. It uses no internal power sources, only energy from the moving air, just like soaring birds. In still air, the sailplane sinks slowly to the ground, but if the air is rising, the sailplane is rising with it. The true beauty of soaring is trying to understand natural phenomena that cause vertical air currents which allow the sailplane to stay aloft.

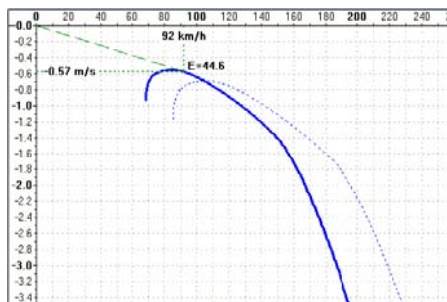
There is, however, some energy needed to bring the glider high enough to start using those air currents. Today, the most common form of launching a sailplane is aerotowing. With aerotowing, the sailplane is connected to a motored towing plane with a top rope.

3.2. Ground school

3.2.1. Performance of a sailplane

Speed polar

The performance of the sailplane is best described with speed polar. The speed polar is a graph of speed vs. sinking speed.



Speed polar

There are several important points on the speed polar:

Minimum speed

The point of minimum speed is the leftmost point on the polar curve. Sailplane can not fly below minimum speed, because it can not produce enough lift to counteract the gravity of the sailplane. Minimum speed should be as low as possible as it means shorter landings and lower radius of circling in thermals.

Minimum sink

The point of minimum sink is the topmost point of the polar curve. If the glider flies at this speed, it will have the lowest sink speed. Obviously, the minimum sink speed should be as low as possible and it should be obtained at lowest speed as possible.

Best glide

At specific speed, called speed of best glide, the glide angle is the shallowest. If the glider flies at this speed, it will fly the furthest. We can get best glide angle by drawing a tangent to the polar through the origin of the axis system.

Glide ratio

The ratio between speed – v and sink speed – w is called glide ratio - E :

$$E = v / w$$

From diagram of forces it can also be shown that glide ratio is ratio between lift force – L and drag force – D .

$$E = v / w = L / D$$

We can get the glide angle from glide ratio as follows:

$$\tan(\varphi) = E$$

Typical glide ratios of modern sailplanes range from 40 to over 60. That means that in still air the sailplane will fly 60 kilometers from 1000 m height before it will reach the ground.

3.2.2. MC theory

When flying between updrafts, soaring pilot has to decide how fast he will fly. If he is flying only to stay aloft, then he might choose the speed of best glide to cover as much distance as possible. This will give him the greatest chance of finding another updraft. But if he is flying cross country or in a competition, he will want to achieve the highest possible average speed.

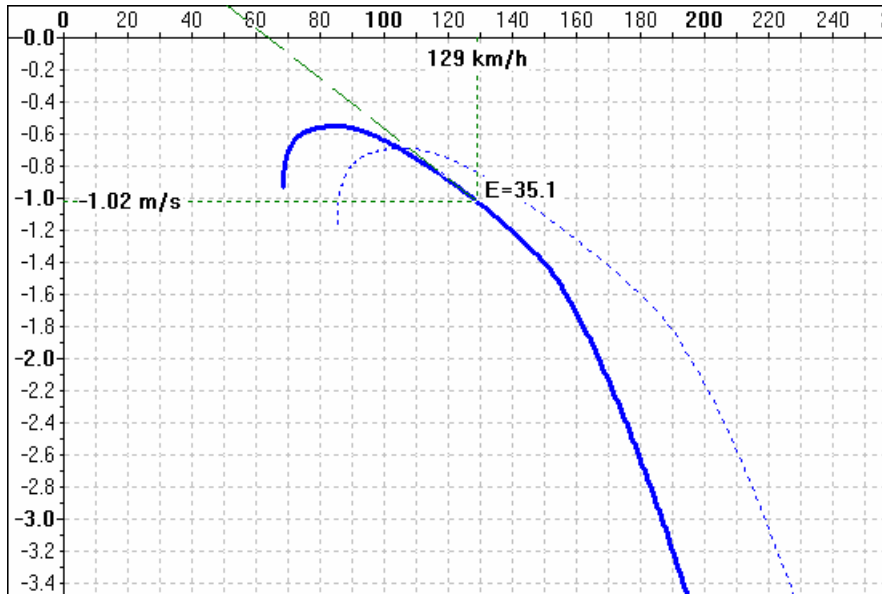
So he might fly as fast as possible to the next thermal – but this will not give him the highest average speed as he will lose a lot of time gaining height again. He might fly with the speed of best glide – again he will not have the best average speed. This time, he will lose too much time to reach the next thermal. The optimum speed is somewhere in between.

To find the optimal speed, Paul McCready invented “optimal speed theory”, later known as MC theory. According to this theory, to compute the optimal speed between updrafts, you need three things:

- the speed polar of your glider
- vertical speed of the air that you are currently flying through and
- the expected rate of climb in the next updraft

The speed polar is known and the current vertical air speed can be measured by instruments. Today, using modern electronic equipment, these parameters are automatically entered into flight computer. The pilot only has to enter one more value: **the expected rate of climb in the next updraft**. Usually, this value is called MC value or simply MC. The output from the flight computer is the optimal speed to fly to achieve the highest average speed.

Graphically, the speed to fly is found by drawing the tangent to the polar from the point of expected rate of climb.



Finding optimal speed to fly

We are expecting to climb 1 m/s at the next updraft and we can see that the optimal speed to fly is 129 km/h. It can also be shown that the average achieved speed is the point where the tangent cuts the speed axis, in our case around 63 km/h.

3.3. Flight school

Flight school consists of practical lessons. The textual information of the lessons that follows is also included in the simulator itself. You should read the text and follow all the lessons as they not only provide information about soaring but also information about using Condor.

3.3.1. Basic lessons

3.3.1.1. Pre-flight check

You start your flight at the airport runway, ready for takeoff. Take time to prepare yourself and the glider before takeoff. The pre-flight checklist should contain:



1. Check the stick and rudder pedals

Move your stick and pedals to all directions to be sure that all of your controls are assigned correctly.

2. Check flaps and airbrakes

Flaps are already set to recommending takeoff setting. Airbrakes are retracted by default, but be sure to check the position of the airbrakes lever before start.

3. Check trimmer

Trimmer is set to neutral position on default. Depending on your C/G setting you may want to trim your glider up or down.

4. Check wind

Take a look at the wind sack, usually located near the runway on your left side. Pay special attention to side- and tail-wind.

5. Set altimeter

Condor automatically sets your altimeter to QNH or QFE setting according to your choice in Setup->Options->Altimeter setting. Because of the air pressure fluctuations, you have to fine-tune the altimeter yourself. The default keys are "EQUALS" and "MINUS".

When you are ready, press ESCAPE button to bring up the Game menu and select 'Ready for takeoff'.

3.3.1.2. Effects of commands

Use elevator to change the sailplanes *pitch*.

Use ailerons to change the sailplanes *bank*.

Use rudder pedals to change the sailplanes *yaw*.



3.3.1.3. Turns

To turn, deflect ailerons and rudder to the direction you want to turn. Try to keep the yawstring centered. You will also have to pull the stick gently backwards to prevent the nose from dropping.



When you reach 30 degrees of bank, center ailerons and rudder, but maintain backward pressure on the stick. The glider now turns with a constant rate. Try to keep bank and pitch constant by applying small corrections with the stick.

Slightly before you reach the desired direction, apply ailerons and rudder to the opposite direction of the turn. You will also have to release the stick gently forward to prevent the nose raising. When the wings are level, your nose should point to the desired direction. Center all commands.

After you master normal turns with 30 to 45 degrees of bank, try some steeper turns. Steep turns require more airspeed and a lot more backward pressure on the stick. You can also practice S-turns to improve your coordination of commands.

3.3.1.4. Winch launching

Winch launching can be dangerous if the plane and the pilot are not well prepared, so be sure to make a good pre-flight check first.



With commands centered, press ESC and select "Ready for takeoff". The wings will level and the winch will apply throttle. The glider will start to accelerate quite fast. Maintain wings level and when the speed reaches some 80 km/h, gently pull the stick to pull of and gradually climb into a steeper angle.

For most gliders the speed in steady climb should be around 110 km/h (60 kts). Maintain constant speed with wings level.

The climb angle will slowly become less steep as you reach the top of the climb. When the vertical speed drops to below 1 m/s (2kts), pull the release handle. Gear up and you are ready to soar.

3.3.1.5. Aerotow launching

Again, make a good preflight check to prepare the plane and yourself for towing.



Press ESC and select "Ready for takeoff". The towplane will start its engine and taxi in front of your glider. The wings will level and towplane will apply throttle. The glider will start to accelerate. Maintain direction and try to keep the wings level. This can be quite tricky as the commands are less responsive at low speeds.

When the speed reaches some 80 km/h (45 kts), gently pull the stick to lift the glider off the ground. Try to follow the towplane some 1 - 2 m (3 to 6 feet) above the ground until the towplane starts to climb. In aerotowing, the towplane should be located at your horizon or slightly above.

When turning, try to keep the same angle of bank as the towplane. Apply small but prompt corrections and follow the path of the towplane. If anything goes wrong, release immediately.

The towplane will tow you to your task starting point and then try to find thermals nearby. When you reach the desired altitude, the towplane will rock the wings, which is a sign you should release. Gear up and you are ready to start soaring.

3.3.1.6. Traffic pattern and landing

In soaring, traffic pattern is very important as the gliders don't have a second chance like motor planes if anything goes wrong. So traffic pattern should be your standard practice even if landing out.



When you start traffic pattern, you should be located parallel to the landing point some 300 - 500 m (yards) from the runway, around 200 m (600 feet) above the runway. At this point you should check that landing gear is down and then fly downwind parallel to the runway. Maintain at least 90 km/h (50 kts) throughout the pattern. In turbulent or unpredictable conditions add 10 to 20 km/h (5 to 10 kts).

Traffic pattern should ideally look like rectangle from above. The task is to adapt the position of the two following turns so as to fly your final approach with half airbrakes open and land at the beginning of the runway. This, of course, takes some practice to master, especially in windy conditions.

When you approach the runway in the final approach, always try to fly on the line of the ideal glide angle, that is the angle with half brakes open that finishes at the beginning of the runway. This means that when you are low, you will retract the airbrakes to reach the ideal line as quickly as possible and vice versa. When you are on the ideal line, just keep airbrakes half open and maintain the speed.

When you are 5 to 10 m (15 to 30 feet) high, slowly pull the stick to stop the glider some 50 to 100 cm (2 feet) above the runway and then try to maintain that altitude for as long as possible to reduce the landing speed. When the speed is reduced, the glider will land by itself. Be careful to maintain the wings level when rolling out.

3.3.2. Intermediate lessons

3.3.2.1. Thermal soaring

Thermals are vertical columns of rising air that is warmed from the hot areas on the ground like fields, villages or slopes facing the sun. They have roughly round cross-sections with diameters from 100 to 500 meters (The visual indications of thermals are cumulus clouds that form when the rising air cools down below dew point and the water vapor starts to condense. When the reservoir of warm air at the ground is exhausted, the lift starts to weaken and finally the cloud dissipates and the cool air starts sinking.



In windy conditions the thermals are usually inclined and are moving with the wind at the same time. So a good place to find thermals on a windy day is downwind of thermal generators. You circle in inclined thermals almost as if they were not inclined as the wind shift is the same for your glider and for the rising air itself.

In Condor you can visualize otherwise invisible thermals by pressing the default H key.

Updrafts are colored red and sink is colored blue. Still air is white. Try to find thermals in the early stages of development - under small, developing cumulus clouds or even if no cumulus cloud is formed yet. Avoid old, dissipating cumulus clouds as you will likely find only sink below them.

When the air is very dry or if we have too low temperature inversion layer, no cumulus clouds will form, but that doesn't mean there are no thermals, there are - they are called "blue thermals", but they are far harder to find.

Thermal soaring is usually the main source of lift in soaring and very long distances can be covered by circling in one thermal and gliding to the other. The better pilot will find stronger thermals and climb faster to reduce the overall task time.

3.3.2.2. Ridge soaring

Ridge lift is generated when the wind blows towards a mountain ridge. The air is deflected upwards in the front part of the ridge but sinks back down at the lee side of the ridge. In ideal conditions the wind is strong, and the ridge is long and perpendicular to the wind direction.



The lift extends vertically about two times the height of the ridge, in ideal cases even more. When we fly below the ridge top, it is usually best to fly close to the ridge, but when we are higher, the area of best lift shifts slightly towards the wind. We avoid the lee side of the ridge since sink and turbulence can be expected.

When flying along the ridge we must search for areas where the terrain is concave. In such areas the lift is stronger as the air speeds up because of the air flux conservation.

Very long ridges can be flown in ideal conditions. Flights over 1000 km (500 miles) have been flown using exclusively ridge lift.

3.3.2.3. Wave soaring

Wave lift can be found in special conditions at the lee side of the mountain ridges.



If the wind is blowing perpendicular to a long ridge, then on the front side of the ridge the air will rise and normal ridge lift can be expected. The air will then sink at the lee side. If the atmosphere is very stable and the wind is strong, the air will rebound upward once again. This upward swing is called wave lift. The height of a wave lift can surpass the height of the ridge lift in front of the ridge and often reaches 5000, sometimes even 15000 meters.

3.3.2.4. Upslope winds

Upslope winds are formed at the sunny sides of the slopes. The air is heated and therefore rises up the slope all the way to the top of the ridge.



Upslope winds are usually not very strong, but are quite consistent and predictable. Glider pilots can fly long distances by just following the ridges. At northern hemisphere, we look for east facing slopes in the morning, south facing slopes at midday and west facing slopes in the evening.

3.3.3. Advanced lessons

3.3.3.1. Starting task and navigation

The task you set in the flight planner should be flown as fast as possible. The time starts running after a specified period of time - "Race in" time, set in flight planner. After takeoff, you should try to quickly gain height to start the task as high as possible. In the upper left corner of your screen you can see when the race will start.



When the race starts, you must round the starting turnpoint. You should pass through the turnpoint sector, drawn in red color on your PDA screen 1. Ideally you should already be in the starting sector when the time starts running.

You can navigate to the next turnpoint in three ways:

1. Using PDA screen 2. The black dot on the screen shows the direction of the next turnpoint. When the dot is in the center of the screen, you are flying directly towards the turnpoint. This screen also shows various data related to the next turnpoint: bearing, heading, distance, VMG - velocity made good, TTG - time to go and ETA - estimated time of arrival.
2. Using moving map on PDA screen 1. You can estimate your direction from the plane icon drawn on the moving map. The next turnpoint sector is coloured red.
3. Using task helpers - default J key. The turnpoints are visualized as vertical stabs. The stab of the next turnpoint is colored red and yellow while other stabs are colored in red and white.

In addition to normal FAI sectors you can also set "Window" type of turnpoints. To round this type of turnpoint you must fly through a window of specified width and height. The orientation and altitude of the window is also set in flight planner. If you are not using task helpers you should use PDA screen 3 to correctly fly through the window. The red dot must be brought to the center of the screen. That means that you are at the correct height and that you are flying towards the window. However, to fly through the window in the right direction, you must also get the blue vertical line to the screen center. This line shows your relative position to the window direction centerline.

You complete the task by rounding the final turnpoint.

3.3.3.2. MC theory

When trying to maximize your cross-country average speed, you come to the question of how fast to fly between thermals. You can fly fast to reach the next thermal as quick as possible, but you will lose a lot of height that will have to be gained back in the next thermal. On the other hand, you can fly slowly and preserve your height, but you will lose too much time to reach the thermal.



The problem was solved by Paul McCready and his theory is called MC theory. It says that the optimal speed to fly between the thermals is the same as the speed of best glide when flying through sinking air with vertical speed that is equal to the rate of climb in the next thermal. Sounds complicated?

Today we luckily have computer instruments on board of every modern glider that show us

how fast to fly. There is one important thing that the pilot must estimate himself though: the expected rate of climb in the next thermal. This rate of climb is usually called MC setting. If we expect 2 m/s climb, we set the MC to 2.0 and the computer will output the optimal speed to fly.

One would expect that the optimal speed to fly remains constant till we change the MC setting. It is indeed the case in still air. But if we fly through the air that moves either vertically or horizontally, then the optimal speed will change. But the pilot has nothing to worry about as the computer does the job - the pilot only follows the given speed.

We can switch from vario to "speed command" with the default RIGHT CTRL key. The vario needle will then show if we are flying too fast or too slow. If the needle shows up, we are flying too fast and vice versa. To relieve the pilot from watching the vario all the time, the sound signal is also emitted. If we are too fast, the tone is high, if we are too slow, the tone is low and if we have the right speed, the vario becomes quiet.

3.3.3.3. Final glide

When circling in the last thermal of the task, the pilot usually asks himself how high to climb. This is of course important for him to reach the airfield. But when racing, the height of departure from the last thermal has also a big influence on the time it takes to reach the finish point.



Again, MC theory does the job. We set the MC to the rate of climb we currently have. The computer will assume that when leaving the thermal, you will fly with the speed that corresponds to that MC setting. Given the estimated speed, the computer can compute the estimated glide ratio and as it also knows the distance to the finish point it can also compute the optimal height to leave the thermal.

Our final glide computer is found on the PDA screen 3. The red dot shows the height at which we will cross the finish line if we will fly with the speed that corresponds to the current MC setting - assuming the air will be still in our final glide. If the dot is below the screen center, we are higher than required and vice versa.

4. APPENDIX 1 – Default keyboard mapping

Command	Default key	Remarks
Bank left	LEFT	
Bank right	RIGHT	
Pitch up	UP	
Pitch down	DOWN	
Rudder left	Z	
Rudder right	X	
Rudder center	C	
Airbrakes in	N	
Airbrakes out	B	
Flaps up	F	
Flaps down	V	
Trimmer up	DELETE	
Trimmer down	INSERT	
Trimmer center	F12	Release trimmer when using stick trimmer
Gear	G	Toggle gear
Wheel brake	PERIOD	
Release	R	Release from towplane / winch
Water	W	Pour out water ballast
Smoke	T	Toggle wing tip smoke
Miracle	Q	Recover damage / height
Game menu	ESCAPE	Bring up the game menu
Pause / Autopilot	P	Pause in free flight / autopilot in multiplayer
Screenshot	S	Take screenshot (or a photo of a turnpoint)
Show classification	TAB	Show score board
Show icons	MULTIPLY	Textual display of other planes data
Lift helpers	H	Show thermals
Task helpers	J	Show turnpoints and penalty zones
HUD toggle	GRAVE	Show on-screen information
Extend chat log	D	Show last 20 chat messages
Zoom in	ADD	
Zoom out	SUBTRACT	
Panel zoom	Y	Zoom to instrument panel
View pan left	NUMPAD4	
View pan right	NUMPAD6	
View pan up	NUMPAD8	
View pan down	NUMPAD2	

View reset	NUMPAD5	Reset zoom and pan to default
View snap left	NUMPAD7	Snap view to left wing
View snap right	NUMPAD9	Snap view to right wing
Cockpit view	F1	Default cockpit view
External view	F2	
Chase view	F3	Press multiple times for static plane cameras
Tower view	F4	Press multiple times for turnpoint cameras
Towplane view	F5	External view of towplane
Fly-by view	F6	
Padlock view	F7	Lock view to other planes
Net player view	F8	External view of other planes
Replay camera	F9	Toggle replay camera / manual camera
Show cockpit	CTRL – F1	Show cockpit
PDA screen 1	1	Moving map screen
PDA screen 2	2	Navigation screen
PDA screen 3	3	Final glide screen
PDA screen 4	4	Thermaling / wind screen
PDA next screen	M	Cycle PDA screens
PDA zoom in	PRIOR	PDA maps zoom in
PDA zoom out	NEXT	PDA maps zoom out
Vario volume up	RBRACKET	
Vario volume down	LBRACKET	
MC Up	HOME	McReady setting up
MC Down	END	McReady setting down
Lift/Cruise toggle	RCONTROL	Toggle vario / speed command
Altimeter up	EQUALS	Decrease altimeter pressure
Altimeter down	MINUS	Increase altimeter pressure
Radio frequency up	BACKSLASH	
Radio frequency down	APOSTROPHE	
G Meter reset	0	Reset G meter min / max hands
Send message	RETURN	Also used to type console commands
Show FPS	SHIFT-D	Show frames per second

5. APPENDIX 2 – Console commands

To write into console, press the default RETURN key.

5.1. Free flight

Command	Parameters	Description
.d	No parameters	Deletes last replay comment
	Comment	Add replay comment

5.2. Client commands

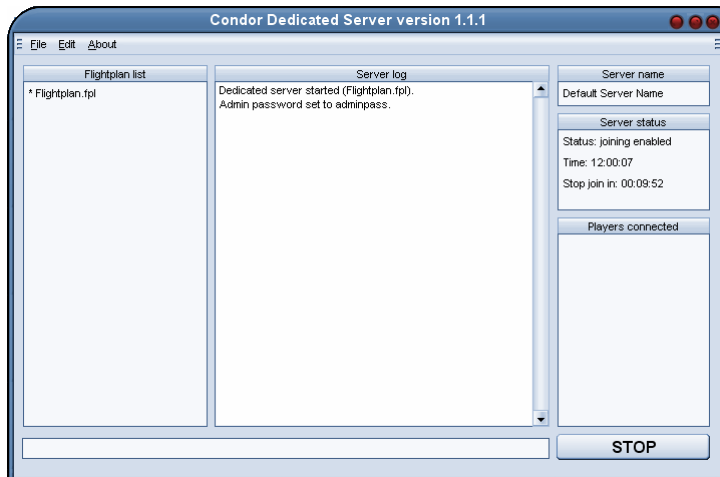
Command	Parameters	Description
.team	Red, Lime, Yellow, Blue, Fuchsia, Aqua, White, Black	Changes the current team (before race start)
.admin	Password	Add client to dedicated server admins
.towinfo	No parameters	A debug command (used when the towplane does not start)

5.3. Server admin commands

Command	Parameters	Description
.password	Password	Sets dedicated server password
.listids	No parameters	Lists IDs of all players
.kick	Player ID or Player CN	Kicks player from the game
.ban	Player ID or Player CN	Kicks player and adds it to ban list
.stopjoin	No parameters / minutes / inf	Sets stop join time
.start	No parameters	Starts tow procedure or airborne flight

6. APPENDIX 3 – Dedicated server

Dedicated server is a standalone executable and a part of Condor installation. The purpose of dedicated server is to host Condor multiplayer games on a standalone PC (Win 2000, Win XP or Server 2003).



Dedicated server screen

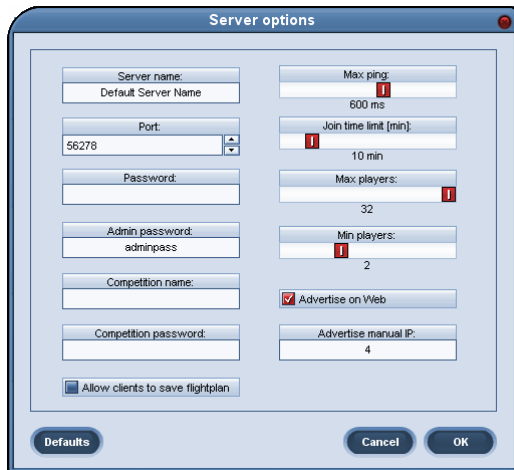
Dedicated server is designed to cycle a list of flight plan files (*.fpl), defined and saved with Condor's flight planner.

6.1. Setting up flightplan list

To setup a flight plan list, add flight plans from the context menu by right-clicking the 'Flightplan list' and choosing 'Add flightplan'. The order of flightplans in the list can be changed by dragging them up or down. Individual flightplans can be deleted with 'Delete flightplan' command from the context menu.

The flightplan list can be saved to flightplan list format (*.sfl) and loaded later. Only *.fpl references are saved to this file format, so moving flightplan lists to another computer is not wise.

6.2. Setting up dedicated server options



Edit - Server options

The settings are similar as with normal server setup. There are three additional options:

Admin password: Here you set the dedicated server administrator password. If other clients know this password, they can become administrators with .admin dot command.

Competition name: Official competitions can be registered (contact us at condorteam@condorsoaring.com). Such competitions can be shown separately on the web server list.

Competition password: Password protection for official competitions.

6.3. GP server options

GP server is a standalone executable that can control multiple dedicated servers. This is useful when organizing big competitions when several dedicated servers are used at the same time. GP server functionality is currently not supported.

6.4. Running the server

The server is started and stopped with START / STOP button. When the server is running, you can enter admin commands and chat messages to the input line in the bottom of the screen. Press ENTER to send the message.

When the 'join in' time is over, the server automatically proceeds to then next flightplan in the list if the number of players drops below minimum player count, set in the Server Options dialog (Edit menu).

The server log is saved to CondorDedicatedLogFile.txt file in Condor root directory.

7. APPENDIX 4 – Support for cockpit builders

Condor features streaming of data like instruments readings and plane data to external applications which can use this data to move instruments and 3D motion platforms.

Condor natively supports Simkits hardware (www.simkits.com) and additionally provides generic UDP output for custom built instruments and cockpits.

7.1. Simkits support

Currently, four instruments are supported:

- airspeed indicator
- altimeter
- electronic variometer
- compass

Variometer data is sent out as »attitude_bank« parameter because some older Simkits controllers (SIC) don't support variometer natively. Just plug the variometer to attitude indicator connector.

7.1.1. Simkits.ini

Simkits output is enabled by setting »Enabled=1« parameter in the »Simkits.ini« file found in Condor installation directory:

```
[General]
Enabled=1
```

```
[ScaleFactors]
Vario=5.9
Airspeed=1.944
Altimeter=1
Compass=1
```

With »ScaleFactors« you can calibrate the instruments so they correspond to actual values.

7.2. Generic UDP output

Condor can stream data to external applications using UDP protocol.

7.2.1. UDP.ini

UDP output is enabled by setting »Enabled=1« parameter in the »UDP.ini« file found in Condor installation directory:

[General]
Enabled=1

[Connection]
Host=127.0.0.1
Port=55278

[Misc]
SendIntervalMs=1
ExtendedData=0
LogToFile=0

In the same file host address and port are also set. Send rate is controlled by SendIntervalMs parameter which specifies the time interval between two consecutive data packets. Some additional parameters are available if ExtendedData is enabled. The output can also be logged to file for debug purposes by setting the »LogToFile=1« parameter.

7.2.2. Packet data

The data packet is an ASCII stream of 'parameter=value' pairs with the following parameters:

time	in-game day time	decimal hours
airspeed	airspeed indicator reading	m/s
altitude	altimeter reading	m
vario	pneumatic variometer reading	m/s
evario	electronic variometer reading	m/s
nettovario	netto variometer value	m/s
integrator	integrator value	m/s
compass	compass reading	degrees
slipball	slip ball deflection angle	rad
turnrate	turn indicator reading	rad/s
yawstringangle	yawstring angle	rad
radiofrequency	radio frequency	mhz
yaw	yaw	rad
pitch	pitch	rad
bank	bank	rad
quaternionx	quaternion x	/
quaterniony	quaternion y	/
quaternionz	quaternion z	/
quaternionw	quaternion w	/
ax	acceleration vector x	m/s ²
ay	acceleration vector y	m/s ²
az	acceleration vector z	m/s ²
vx	speed vector x	m/s
vy	speed vector y	m/s
vz	speed vector z	m/s
rollrate	roll rate (local system) x	rad/s
pitchrate	roll rate (local system) y	rad/s

yawrate	roll rate (local system) z	rad/s
gforce	g forces	/
*height	height of CG above ground	m
*wheelheight	height of wheel above ground	m
*turbulencestrength	turbulence strength	/
*surfaceroughness	surface roughness	/
*hudmessages	HUD messages	text separated by ;

Note: all values are floats with '.' as decimal separator

** available only if ExtendedData=1 in UDP.ini*