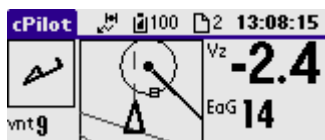


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# CompetitionPilot



## User guide

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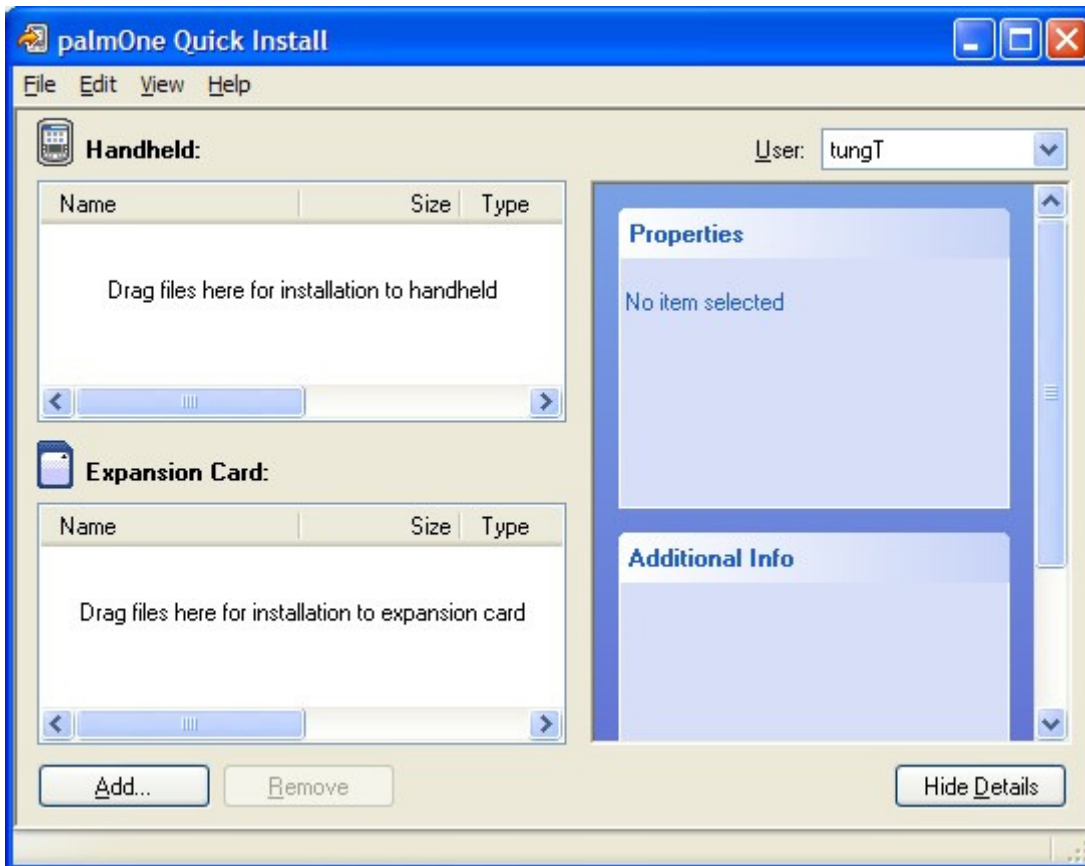
To install CompetitionPilot you need to have the PalmDesktop software on the PC. If you did not get your copy of this software with your palm computer, you can download it from [www.palm.com](http://www.palm.com).

**Step 1**

Download the files **cPilot.prc** and **MathLib.prc** from the [download](#) page, after reading and agreeing to the license agreement, and save them on your PC. Please note that without the **MathLib.prc** library CompetitionPilot will not work.

**Step 2**

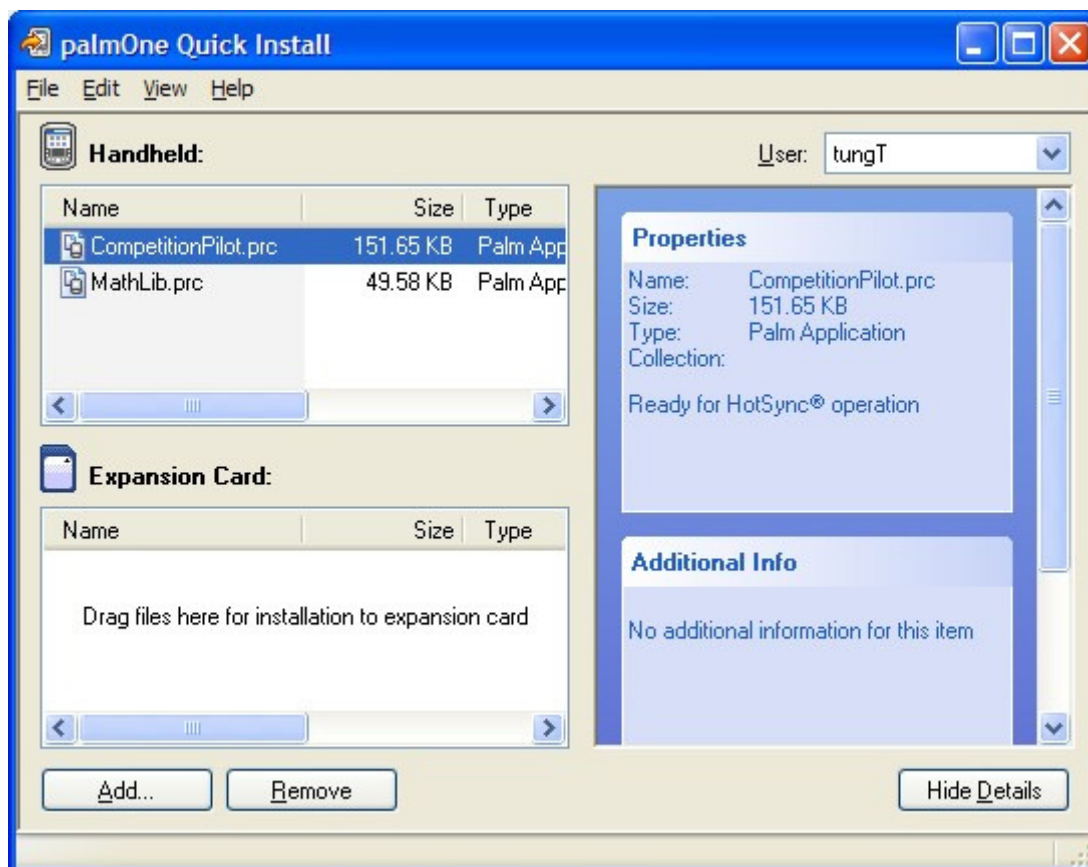
On your PC, start the **PalmOne Quick Install**, or equivalent, that can be typically found in the **Program files/Palm Desktop** submenu of the Windows "Start" menu. **PalmOne Quick Install** window can include one or two lists that allow to choose the files to install on the palm (**Handheld** list) or in the expansion memory card (**Expansion card** list) if present. If your palm device is not equipped with an expansion slot, then only one list will be shown.



Make sure to choose the name that you have given to your device from the **User** drop-down list (top-right corner of the window).

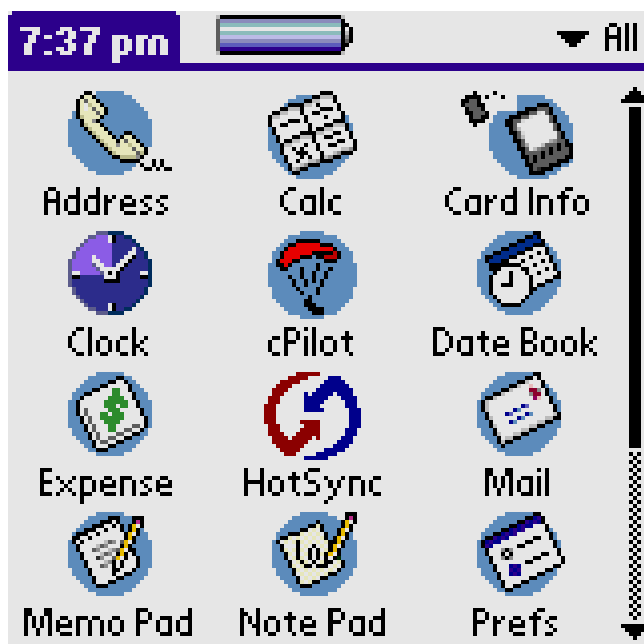
If the name of your device does not appear in the drop-down list, you have to connect your palm to the PC with the HotSync cradle and start the HotSync procedure: you will be asked for the name that will identify your device. Quitting and running again **PalmOne Quick Install** the new name will be shown in the drop-down list.

Select the **File/Add files...** menu: a new window will be opened allowing you to choose the programs to be installed. The selected files will be shown in the **Handheld** list. It is also possible to add files to this list by dragging and dropping their icons. At this point you have to select the **cPilot.prc** and **MathLib.prc** files for installation.



### Step 3

Connect your palm to the PC with the HotSync cradle and start the HotSync procedure. The two files will be copied in the palm memory. Only the CompetitionPilot icon will be shown, because libraries icons are normally not shown.



### Step 4

Start CompetitionPilot. If the navigation page appears, then the installation procedure is complete!

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To use CompetitionPilot in flight you have to do some preliminar settings, such as choosing the language (English or Italian).

### Choice of the language

When you start CompetitionPilot for the first time after installation, you will be asked to choose which language you want to be used.



You can change this setting later from the [program-option page](#).

### Setting the time zone

CompetitionPilot uses the time provided by the GPS, rather than by the internal Palm clock, to give informations about the start opening or closing, the task duration, and so on.

GPSs do not provide the local time, but the UTC time. This means that you will have to tell the program the difference, in number of hours, between the local time and the UTC time. Open the [program-option page](#), from the **Options/Program** page and enter the number of hours to shift the GPS time in the **GPS time offset**.

**Options** ---:---:---

Protocol  Garmin  NMEA

Connection  cable  BlueTooth

Baud rate ▼ auto

Language  Italiano  English

GPS time offset 2.....

Disable application key

Disable power key

Bluetooth address

00:00:00:00:00:00

(Done) (reset BT address) (Advanced)

To check that you have entered the correct value, connect your GPS (see: [Connecting to the GPS](#)), let your GPS get a fix, and return to the navigation page (menu: **CPilot/Navigation**). If the right time is shown in the top-right corner of the window, then you are done!

**Warning:** if you do not adjust the time accurately, CompetitionPilot will not manage correctly the start-pylon alerts.

## Measurement units **New**

If you prefer using a measurement-unit system different from the metric one to show or enter data, you have to use the [Measurement-unit setting page](#) (menu: **Options/Units**) to choose your favorite units.

**Units** ---:---:---

Altitude: ▼ m

Horizontal speed: ▼ km/h

Vertical speed: ▼ m/s

Distance: ▼ km

(Done) (Reset to defaults)

By means of the drop-down menus you can choose the units for horizontal speeds, vertical speeds, distances and altitudes.

CompetitionPilot default settings are: **m/s** for horizontal speeds, **km/h** for vertical speeds, **km** or **m** for distances and **m** for altitudes.

The **Reset to defaults** restores the default units.

## Connecting to the GPS

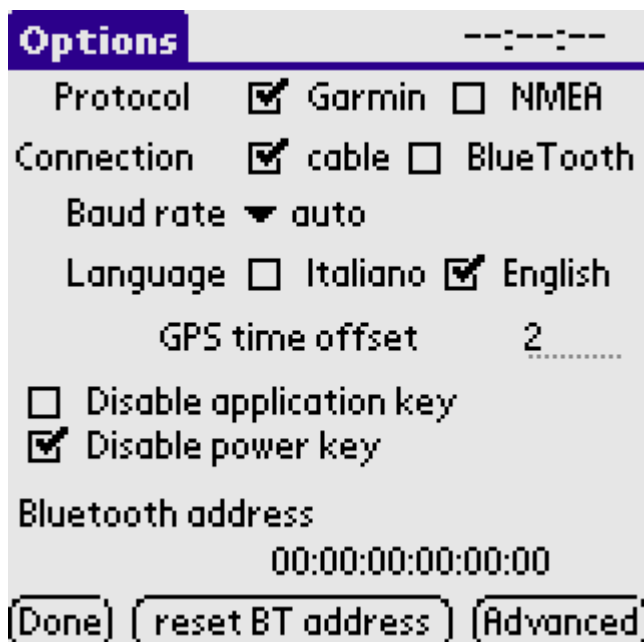
[index](#)

CompetitionPilot is compatible with GPS units using the NMEA protocol that have a serial or BlueTooth interface. It is also partially compatible with the Garmin protocol.

### NMEA serial connection

To connect your palm and GPS devices you need a null-modem serial cable with appropriate connectors to match those on your devices. To find some connection schemes go to the [scheme page](#).

The GPS unit has to be configured to use the NMEA protocol and must be connected to your palm. Start CompetitionPilot and open the program-options page (menu: **Options/Program.**)



Choose NMEA protocol and cable connection by checking the appropriate checkboxes. When you install the program for the first time this is the default configuration. Typically, devices using the NMEA protocol set the serial transfer speed at 4800 bauds. Some, anyway, use different values that cannot be changed by the user. To communicate with these instruments, CompetitionPilot allows to set the baud rate manually from 4800 to 57600 bauds by means of the drop-down list **Baud rate**. The **auto** entry in this list makes CompetitionPilot choose 4800 as the baud rate when using the NMEA protocol and 9600 when using the Garmin protocol. It does NOT allow to automatically detect and configure the baud rate of a non-standard device.

### Connecting to a BlueTooth GPS

CompetitionPilot can be connected to NMEA GPS units via BlueTooth if this interface is available both on the palm and the GPS devices. To configure the BlueTooth connection you need to switch the GPS on and place it close enough to your palm unit to allow wireless communications.

Start CompetitionPilot and open the program-options page (menu: **Options/Program.**) Selecting the **BlueTooth** checkbox your palm will start a search for all the BT devices within

reach and show them in a list. Select your GPS device from the list.

CompetitionPilot shows the BT address of the selected device below the **BlueTooth address** label and stores it in the program memory. When you run CompetitionPilot again, it will try and connect to the same device without repeating the search procedure.

If you want to connect to a different unit, you have to reset the stored address by touching the **reset BT address** button and starting a new search by selecting the BlueTooth checkbox.

## Connection status

The status of the connection is shown in the main page by means of icons placed in the upper part of the display. The symbols used are:



It was not possible to open the communication interface or the BlueTooth connection was closed;



The connection is active, but there are no incoming data;



The two icons flash at a one-second rate. The connection is active and there are incoming data, but they are not valid NMEA data or the GPS is still trying to acquire the position;



The connection is active and the GPS has achieved a 2D fix. The altitude value is not valid.



The connection is active and the GPS has achieved a 3D fix.

If the GPS loses the satellite fix or the serial connection fails for any reason, CompetitionPilot will warn you with a pair of beeps and by showing a warning message. The message is shown for one second.



If the BlueTooth connection fails, CompetitionPilot will start a 5-seconds countdown. During this period you can disable the BlueTooth connection by pressing the **Cancel** button. When the timer expires, CompetitionPilot will try and reconnect to your GPS.

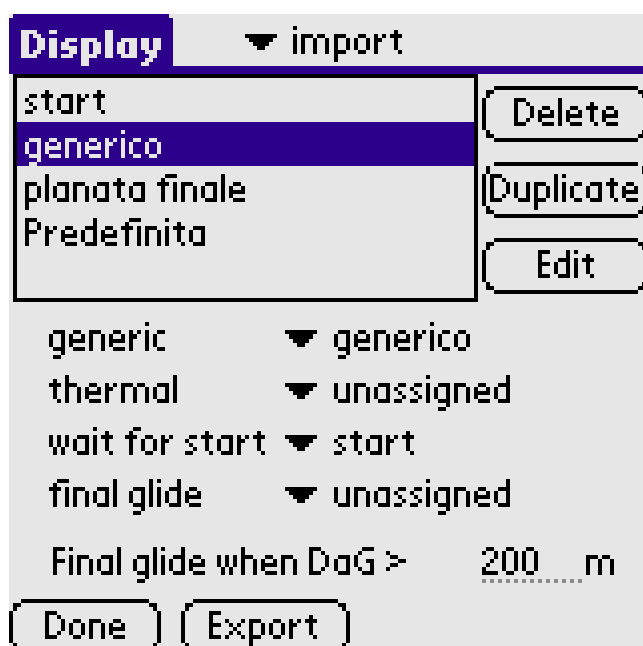
## index

By means of this page you can customise the look of the navigation page by choosing which parameters to show and the size and position of the text and graphical items, such as the map.

Different configurations can be saved and loaded when needed.

It is also possible to export the configurations to a file (on a memory card) or to another palm unit (via BlueTooth or infrared). From the **import** drop-down list on the top of the page you can load the configurations saved on the memory card. In this way you can easily share your display configurations with your fellow pilots.

The display-management page is accessed by the menu item **Options/Display SetUp**.



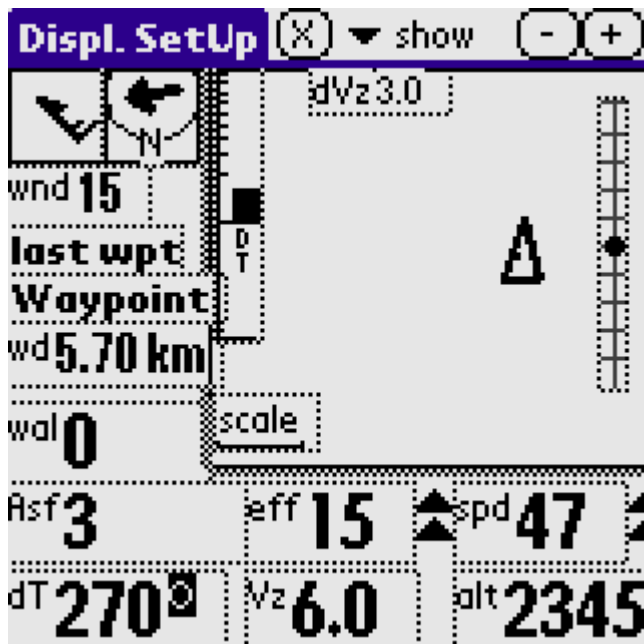
The list in the top portion of the page shows the stored configurations. Following the first installation of the program, the **default** configuration is automatically created.

The **Duplicate** key creates a copy of the selected configuration. Using this button you can create additional configurations starting from the default one.

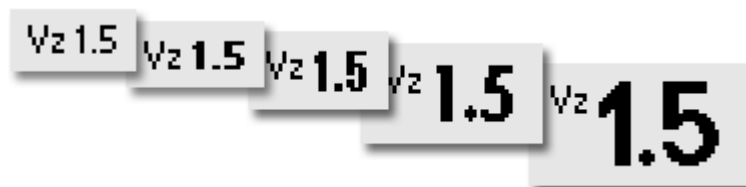
The **Delete** button erases (after asking for confirmation) the selected configuration. It is not possible, anyway, to delete a configuration if it is the only one remaining.

To modify one of the configurations available, just select it with the stylus and press the **Edit** button. The display-design page will appear.

Each item in the window is drawn with a dotted bordered that shows the region of the display needed to draw that item. A particular item can be "activated" by touching the display within the item border with the stylus. The active object will be drawn with a thicker border. It can be removed from the display, enlarged or reduced by means of the buttons in the upper part of the window. It can also be dragged into a different position with the stylus.



The **X** button removes the selected item from the display. The **+** and **-** buttons change its size.



The **show** drop-down list shows all the hidden fields. Selecting a listed item makes it appear on the screen.

Some of the available items are:

<u>Map</u>	<u>Map scale</u>
<u>Compass</u>	<u>Wind</u>
<u>Wind speed</u>	<u>Wind (North)</u>
<u>Altitude</u>	<u>Vert. speed</u>
<u>Heading</u>	<u>Ground spd</u>
<u>Efficiency</u>	<u>Start time</u>
<u>Route name</u>	<u>Wpt name</u>
<u>Wpt distance</u>	<u>Wpt altitude</u>
<u>Turn</u>	<u>Alt. at max eff</u>

---

<u>Alt. at spd to fly</u>	<u>dVz</u>
<u>dT</u>	<u>Cyl distance</u>
<u>Arr. height ruler</u>	<u>Arrival height on the waypoint</u>
<u>Round compass</u>	<u>Efficiency required to next wpt</u>
<u>Arrival altitude (SLM) at goal</u>	<u>Arrival altitude (SLM) above goal</u>
<u>Efficiency required to reach the goal</u>	<u>Altitude (SLM) required to reach the goal</u>
<u>dT-start ruler</u>	

---

## Automatic display selection

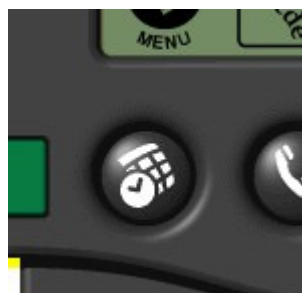
It is possible to assign some of the saved configurations to different flight situations (generic, thermal, wait for start, final glide) in order to have them automatically loaded when appropriate. **unassigned** makes the program keep the current configuration.

The input field **Final glide when DaG > \_\_\_ m** allows choosing when to switch to the final-glide configuration. When CompetitionPilot estimates that you will arrive above the goal waypoint with a remaining altitude above ground greater than the set value, it will switch to the configuration assigned to the final-glide situation. If the estimated arrival height drops below zero during the transition, due for example to unexpected sink, CompetitionPilot will switch back to the generic configuration.

During the flight, the automatic display selection is indicated on the title bar with a paper-sheet-shaped icon followed by an "A" character:



It is possible to choose a different page among the saved ones by pressing the hard button:



Repeated button hits will cycle through the pages.

The activation of the manual page selection is shown in the title bar with the paper-sheet-shaped icon followed by the chosen configuration number:



The automatic display selection can be enabled again by pressing the hard key:



## Transferring routes/waypoints/displays from a PC to your palm

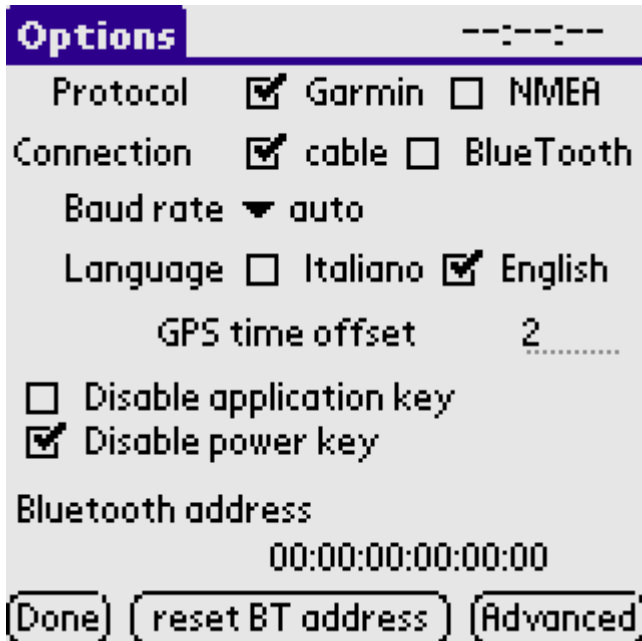
[index](#)

Transferring routes, waypoints and displays from a personal computer to the palm memory can be done in several ways, depending on your palm and computer features and of the available connections.

## Transferring waypoints and routes from CompeGPS

CompetitionPilot allows importing waypoints and routes from CompeGPS using the Garmin protocol and a serial connection.

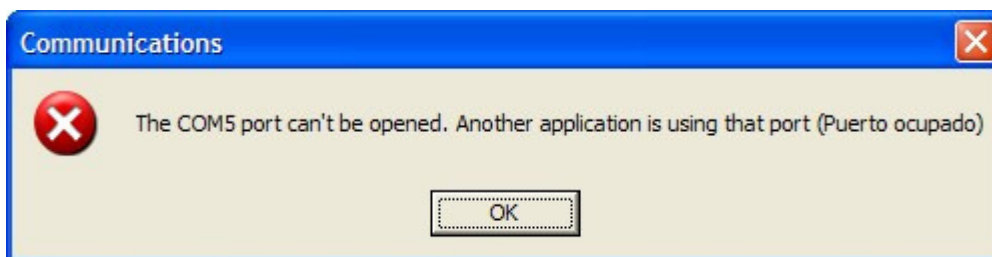
In CompetitionPilot, open the option page (menu: **Options/Program**) and choose the Garmin protocol by selecting the corresponding checkbox with the stylus.



In CompeGPS, open the communication configuration page (menu: **Communications/Configure Communications**.) In the window that will be shown, choose the serial port to which the palm is connected and **Garmin** as the communication protocol. The speed will be automatically set to 9600 bauds.

Start the transfer of the route or waypoints loaded in CompeGPS by giving the **Send the route to the GPS** command or the **Send the waypoints to the GPS**.

**Note:** you might get an error message from CompeGPS when you start the transfer:



In this case, read the next paragraph for a tentative solution.

If you are transferring a route, CompeGPS will ask for the route number. This parameter is not used by CompetitionPilot and can be set to any value.

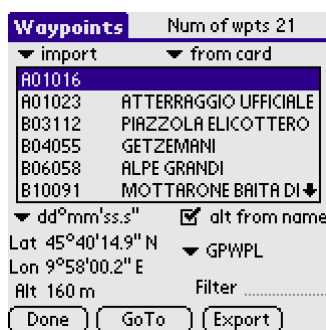
If you normally use a NMEA-output GPS, remember to set the CompetitionPilot protocol back to NMEA at the end of the transfer.

**Attention:** the transfer will probably fail if there are open menus or popup-lists in CompetitionPilot when CompeGPS tries to communicate with the palm. Remember to close any open menu before starting the transfer by touching with the stylus outside the menu area.

## Transferring waypoints via the NMEA protocol over a serial connection

This method requires the palm and PC units to be connected by a serial cable. A suitable software (CompeGPS, GPSbabel, ...) must be running on the PC.

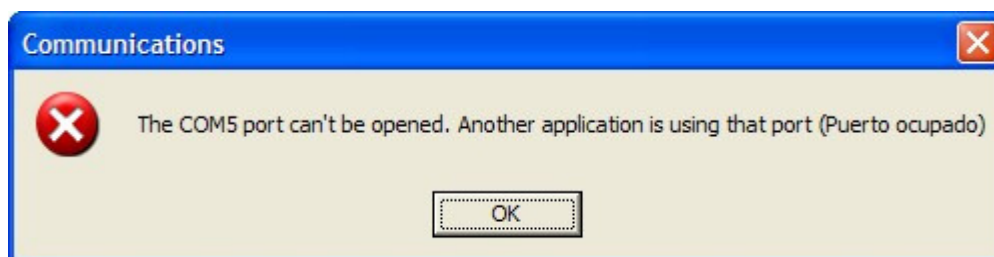
From the menu cPilot/Waypoints open the waypoint-specific page and select **GPWPL** from the drop-down menu below **Filter**. If you want to transfer waypoint from a MLR GPS, select **GPWPL MLR** from the same menu. This makes CompetitionPilot store in its internal memory the waypoints arriving from the serial cable in NMEA format.



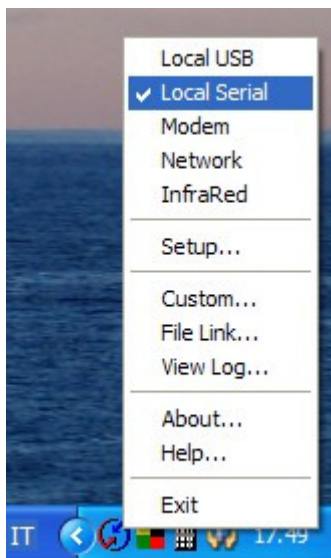
With CompeGPS (or another equivalent program) open the waypoint file that you want to transfer, select the NMEA protocol in the configuration page and start the data transfer (menu: **Communications/Send Waypoints to the GPS** in CompeGPS.)

Additionally, it is possible to convert a waypoint file into a NMEA file with a program such as GPSBabel and then send the newly created file over the serial cable with Hyperterminal (or other equivalent program) available in the Windows Accessories.

**Note:** you might get an error message from CompeGPS when you start the transfer:



This error might originate from the HotSync program (the one used to install applications into the palm unit) keeping the serial port busy. To solve the problem, find the HotSync icon in the Windows taskbar, on the right, and left-click on it. If "serial" is enabled, disable it by left-clicking and try starting the transfer again. Remember to re-enable the serial option in HotSync when the transfer is complete.



**Attention:** the transfer will probably fail if there are open menus or popup-lists in CompetitionPilot when CompeGPS tries to communicate with the palm. Remember to close any open menu before starting the transfer by touching with the stylus outside the menu area.

## Saving waypoints/routes/displays on a memory card

Using a palm unit equipped with an expansion slot makes managing waypoint/routes/displays particularly easy. Indeed you can transfer into your memory card waypoint or route files, directly in .wpt or .rte CompeGPS format (OziExplorer .wpt files work as well) or display in CompetitionPilot .dsp format, during a Hotsync operation. You don't need to convert the files in any specific format.

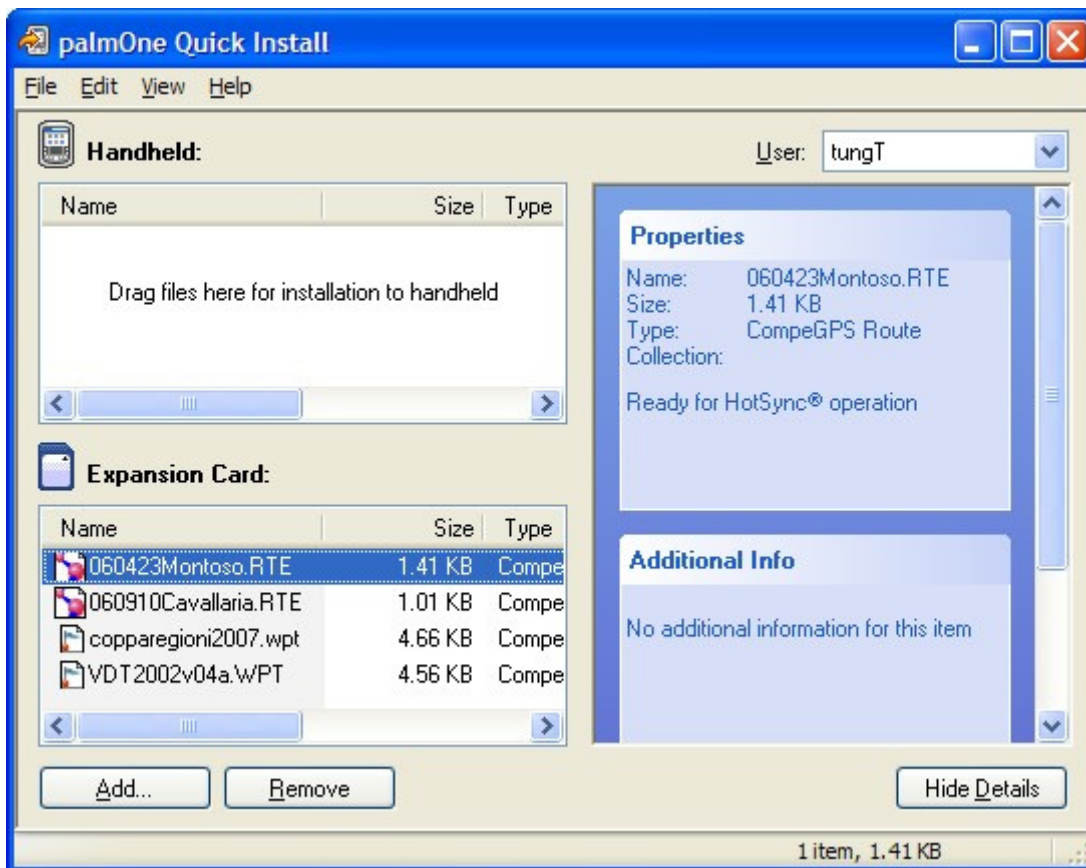
**New Warning:** from version 1.6.3 of CompetitionPilot you can import .wpt files both in Lat/Lon format and UTM projection.

To transfer files into your memory card, start the **PalmOne Quick Install** application (or equivalent) on your PC. It is normally located in the Start menu, under Program files/Palm Desktop.

Make sure to select your palm's name from the **User** drop-down list (top-right side of the window).

If your palm unit is equipped with an expansion slot, the **PalmOne Quick Install** window will contain a list (**Expansion Card**) dedicated to file transfer into the memory card.

Using your mouse, drag and drop into this list the icons of the route or waypoint files that you want to copy in your memory card.



Put your palm on the Hotsync cradle and connect the cradle to your PC. Check that the memory card is inserted in the palm and start the HotSync operation. The selected files will be transferred into the memory card.

When needed, you can load them in CompetitionPilot, ready to be used during flight, by means of the **import** drop-down lists that are available in the route, waypoint, and display pages.

Another transfer method consists in copying the route, waypoint or displays files directly on the memory card, by using a card reader connected to your PC.

In this case, it is important to copy your files in the appropriate subfolders (CompetitionPilot creates them automatically immediately after its installation):

waypoint files, in CompeGPS or OziExplorer format and with **.wpt** extension, must be copied into the **PALM/CPilot/waypoints** folder;

route files, in CompeGPS format and with **.rte** extension, must be copied into the **PALM/CPilot/routes** folder;

display files, in CompetitionPilot format and with **.dsp** extension, must be copied into the **PALM/CPilot/displays** folder.

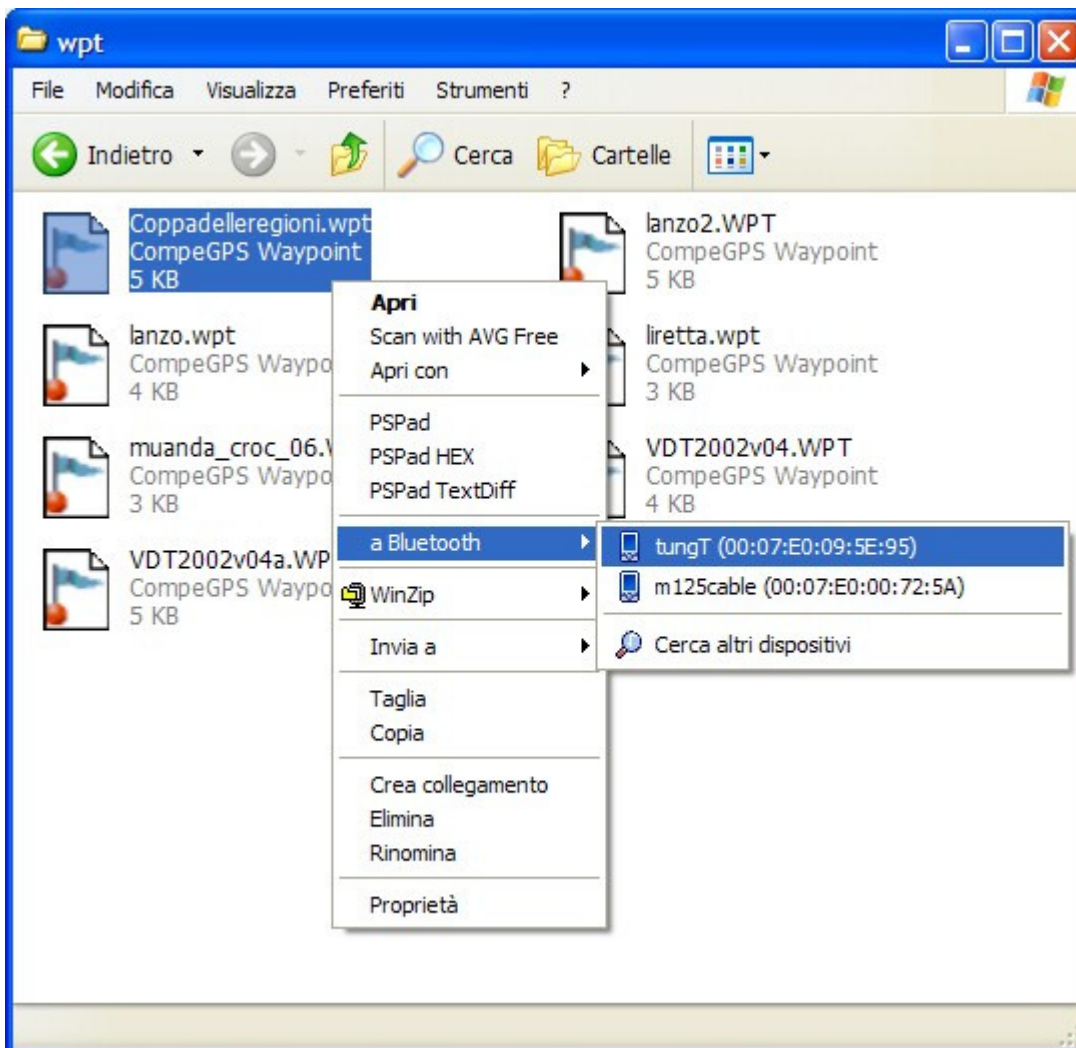
Failing to copy the files in the appropriate folders will prevent CompetitionPilot from finding and loading them.

## Transferring route, waypoint or display files via BlueTooth

If both your PC and your palm unit feature a BlueTooth interface, you can transfer waypoints (in CompeGPS or Oziexplorer format and with **.wpt** extension), routes (in CompeGPS format and with **.rte** extension) and displays (in CompetitionPilot format and with **.dsp** extension) directly into CompetitionPilot.

Start CompetitionPilot and make sure that it is not using the BlueTooth interface by choosing the cable connection.

On your PC, right-click on the file you want to transfer and select your palm name from the **to BlueTooth** menu. The transfer details may depend on the specific BlueTooth device installed in your PC.



When the connection is established, CompetitionPilot will ask you to confirm the import operation before accepting the file.

By using the BlueTooth interface, it is also possible to transfer route, waypoint and display data from a palm unit to another (both of them must be equipped with BlueTooth). On the transmitting unit follow the procedure described below, while on the receiving unit follow the procedure described above as if the data were coming form a PC.

## Transferring route, waypoint or display files via infrared beaming

Using an infrared connection, it is possible to transfer routes, waypoints, and displays from a palm unit to another one. On the transmitting device follow the procedure described below, while on the recieving unit start CompetitionPilot and open the import-via-IR page (menu: cPilot/IR import.) Align the two palm infrared ports so that they face each other.

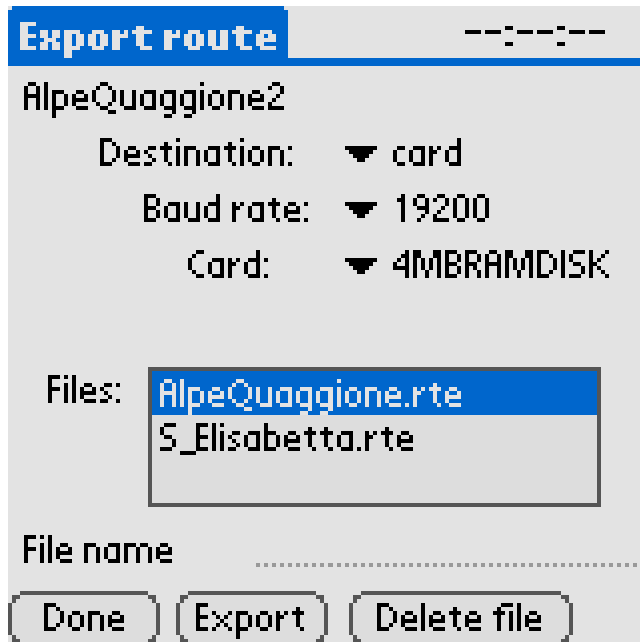
**Transferring routes/waypoints/track logs/displays from your palm** [index](#)

CompetitionPilot offers several ways to export data (waypoints, routes, track logs, and displays) to a PC or another palm.

## Exporting routes

Open the [route-management](#) page (menu: cPilot/Routes) and select from the route list the one that you want to export.

From the **Routes** menu, choose **Export route**. The export page will be shown:



The first line below the title shows the chosen route name.

**Destination** allows to choose whether to save the route on a memory card, send it via BlueTooth, infrared or over a serial connection.



In the case of serial transfer, you have to select the transfer baud rate from the drop-down list **Baud rate**. When exporting to a memory card, please select the chosen destination card from the **Card** drop-down list.

If a memory card is available, in the **Files** list CompetitionPilot will show the **.rte** files stored in the **PALM/CPilot/Routes** subfolder of your card. When you select one with the stylus, its name is copied in the text field **File name**, allowing you to modify it.

You can delete existing files from the memory card by selecting them (one at a time) and using the **Delete file** button.

After choosing the file name (if the **File name** text field is left blank, a default name will be used), touch the **Export** button: the route will be saved to file or sent to a remote device depending on the chosen destination.

## Saving to a memory card

CompetitionPilot does not allow to overwrite an existing file. It is anyway possible to select one from the list (its name is copied to the **File name** text field), delete it, and then save the chosen route with the same name.

## Exporting via BlueTooth or Infrared

As soon as you press the **Export** button, CompetitionPilot starts a search for receiving devices and shows them in a list. Choose the PC or the palm unit that you want to transfer data to: the route will be sent with the name given in the **File name** text field or with a default name if the field is left blank.

If you are exporting via infrared to a palm device, remember to open the **IR import** page on the receiving unit (menu: cPilot/IR import).

If you are exporting via BlueTooth or infrared, CompetitionPilot disconnects automatically from the GPS, if necessary. At the end of the transfer it will connect again.

## Exporting over a serial connection

Connect your palm unit to a PC with a serial cable. On the PC, start a serial-communication program such as HyperTerminal, that is normally found within the Windows accessories (read: [using HyperTerminal](#).)

## Exporting waypoints

From the [waypoint-management](#) page, press the **Export** button. All the waypoints listed will be exported. It is possible to select a subset of the waypoints in memory by using the **Filter** text field: only the waypoints whose name starts with the string input in the **Filter** text field will be selected.

It is also possible to export waypoints to the palm memory, by selecting **memory** as a destination in the export page. This is particularly useful if your palm has no expansion slot. You can save waypoints of different flight places in different files in the palm memory and import only those that you need when you need them.

### Saving waypoints to the palm memory or to a card?

If your palm is equipped with a memory card, it might be a better option to use it as a waypoint storage rather than saving them to the palm memory. In the case of power loss all the data in the palm memory will be lost. On the contrary, those on the memory card will still be there.

## Exporting track logs

In the track-management page (menu: Options/Track) press the **Export** button. All the tracks logged will be exported. CompetitionPilot will create a file for each track in memory naming it with the FAI rules for long names. For this reason the **File name** text field in the export page will be ignored in this case.

## Downloading the track-log with CompeGPS

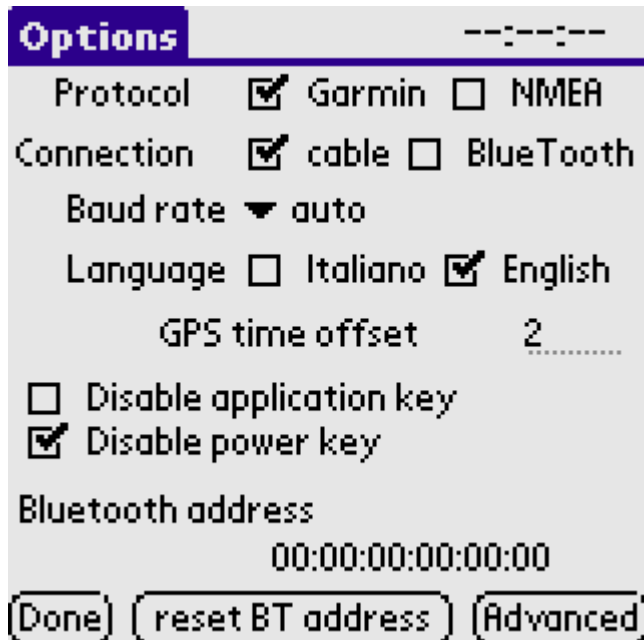
You can download the track log directly to your PC with CompeGPS. Indeed, CompetitionPilot

can communicate with CompeGPS using the Garmin protocol.

This can be quite convenient as it allows to save your flights with a digital signature (the G-record) that is automatically generated by CompeGPS.

Using this features requires setting CompetitionPilot and CompeGPS to use the Garmin protocol.

In CompetitionPilot this can be done from the option page of the program (menu: **Options/Program**), by selecting the Garmin checkbox:



In CompeGPS you can choose the protocol with the menu **Communications/Configure communications**.

At this point you have to connect your palm device and PC with a serial cable and select the command **Download Tracklog** from the **Communications** menu.

Unfortunately, CompeGPS does not allow to choose the serial-port baud rate (it is fixed at 9600) for the Garmin protocol. This limits the achievable transfer speed.

It is also possible to use a BlueTooth connection, if available. In this case the transfer time is not limited by the baud rate and will be quite short, limited typically by your palm speed.

During the track-log transfer, CompetitionPilot displays a progress indicator showing the status of the operation and allowing to stop it.



## Exporting displays

You can export your displays as you would do for routes or waypoints to share them with

other pilots.

To do that, open the display set-up page (menu: Options/Display SetUp) and press the "Export" button, in the bottom part of the screen.

CompetitionPilot will show the export page. Here you can choose to save the file on a memory card or to export it to a different device (PC or palm) via infrared or BlueTooth.

You can find an example describing how to transfer displays from a palm unit to another one via infrared in the [infrared import](#) page.

## Exporting/importing displays via HotSync

If none of the methods described up to now is available, you can still transfer your displays to your PC via HotSync. Just follow these steps:

- connect your palm unit to your PC with the synchronisation cable that came with your palm (it might be a serial or USB cable);
- start a HotSync procedure;
- on your PC, open the **Program files/palmOne** folder, that typically is located on disk **C:**;
- inside this folder, you will find another one named with the name that you have given to your palm. Here there is another folder named **Backup**;
- find the **dspCPilotDatabase.PDB** file inside the **Backup** folder.

The **dspCPilotDatabase.PDB** file contains all the displays that you have on your palm unit: you can copy it for backup purposes or to share it with other pilots.

It has to be emphasised, anyway, that the file that you get with this procedure is in a different format with respect to the one that you get when exporting displays via infrared or BlueTooth or saving them on a memory card. You get a file with **.PDB** extension rather than **.dsp** (which is the extension that identifies CompetitionPilot display format). The main differences between these kind of files are:

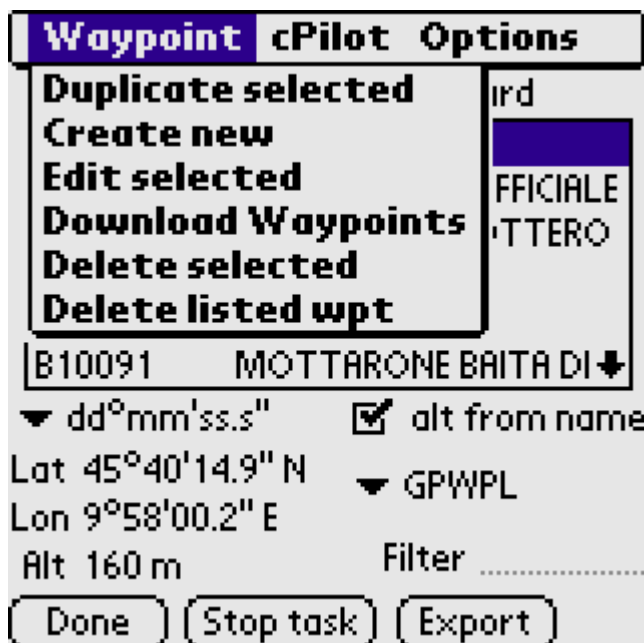
- when you importa a **.dsp** file, the new displays will be **added** to the ones already available in CompetitionPilot. When you import a **.PDB** file, the new displays will **delete and replace** the existing displays;
- you may not change the name of the **dspCPilotDatabase.PDB** file. If you rename and trasfer it to your palm, CompetitionPilot will ignore it.

To transfer files in **.PDB** format from your PC to your palm unit, you may use the QuickInstall program, included in Palm Desktop. The procedure is similar to the one described above to [install CompetitionPilot](#). Remember that the displays contained in the **dspCPilotDatabase.PDB** files will delete and replace the existing displays.

## **New** Waypoint management

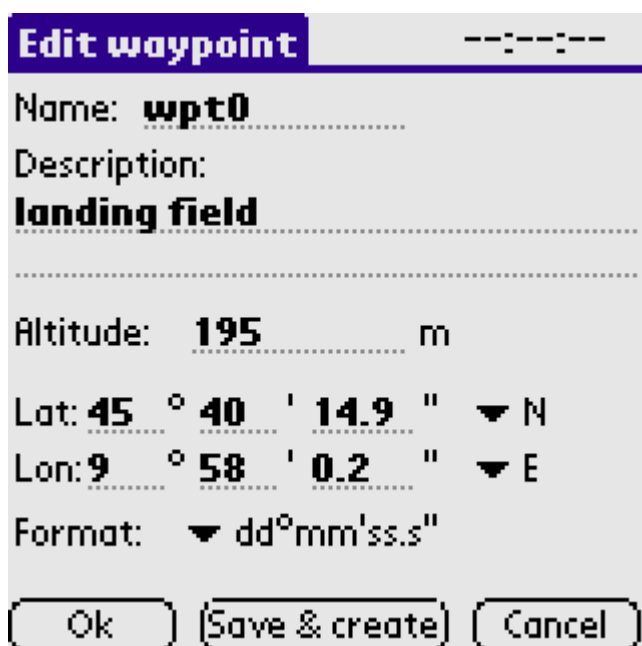
## [index](#)

You can create, delete and edit waypoints by means of the specific menu available in the waypoint page.



## Editing a waypoint

To edit one of the waypoints shown in the list, select it and choose **Edit selected** from the **Waypoint** menu. CompetitionPilot will open the waypoint-editing page, from where you will be able to modify the waypoint name, description, coordinates and altitude.



You can choose the coordinate format by means of the drop-down menu **Format**.

When you are done, you can save the changes and return to the previous page by pressing the **Ok** button.

To discard the changes and return to the waypoint page, press **Cancel**.

If you want to save the changes and create a new waypoint on the fly, press the **Save & create** button.

## Creating new waypoints

From the waypoint page, open the **Waypoint** menu and select **Create new**. CompetitionPilot will open the editing page (see above), that will allow you to enter the new-waypoint data: name, description, coordinates and altitude. After entering the data, you can save the new waypoint and return to the previous page by pressing the **Ok** button.

To discard the new waypoint, press **Cancel**.

If you want to save the changes and create a new waypoint on the fly, press the **Save & create** button.

## Duplicating a waypoint

To create many waypoints with similar coordinates, it might be more convenient to duplicate an existing waypoint and modify the newly created one, rather than starting from scratch.

Select the waypoint that you want to duplicate and choose the **Duplicate selected** command from the **Waypoint** menu. CompetitionPilot will create a copy of the selected waypoint and open the editing page to allow you to modify the new-waypoint data.

## Deleting a waypoint

Open the **Waypoints** page (menu **cPilot/Waypoints**) and select with the stylus the waypoint that you want to delete. From the **Waypoints** menu give the **Delete selected** command.

You will be asked to confirm before CompetitionPilot actually deletes the waypoint.

If the selected waypoint is used in any of the routes in memory CompetitionPilot will not delete it (a warning message will be shown.)

## Deleting a set of waypoints

You can delete all the waypoints shown in the list by using the **Delete listed wpt** command from the **Waypoints** menu.

It is possible to restrict the waypoints shown in the list (and consequently those that will be deleted) to a subset of those in the palm memory by the **Filter** field: CompetitionPilot will show a waypoint in the list only if its name begins with the characters that you write in the **Filter** field.

You will be asked to confirm before CompetitionPilot actually deletes the waypoints.

If a waypoint is used in any of the routes in memory CompetitionPilot will not delete it. In this case no warning will be shown.

## Route management

## [index](#)

You can create, delete and edit routes by means of the specific menu available in the route page.



## Creating a new route

You can create a new route starting from the waypoints in memory. Open the [route-management page](#) and select the **Route/New route** menu.

Enter the new-route name in the dialog window that will appear and hit OK:



CompetitionPilot will show the [route-edit page](#) that will allow you to add waypoints to the new route. Exiting from the edit page the new name will be created and added to the list of routes.



## Editing a route

To edit a route, select it from the list and give the **Edit route** from the **Routes** menu.

CompetitionPilot will open the editing page:



The list on the top half of the page shows the waypoint that compose the route. The lower list displays all the waypoints in the Palm memory.

By means of the "Filter" text field you can restrict the waypoints shown in the list to those beginning with the string entered in the field.

The "trash can" button removes the selected waypoint from the route. The "+" button adds to the route the waypoint selected in the waypoint list.

The arrows move the selected waypoint up or down in the list.

## Deleting a route

Open the **Routes** page (menu **cPilot/Routes**) and select with the stylus the route that you want to delete. From the **Routes** menu (specific of this page) give the **Delete selected** command:



You will be asked to confirm before CompetitionPilot actually deletes the route.

## Deleting all the routes and waypoints

Open the **Routes** page (menu **cPilot/Routes**) and give the **Delete all** command from the **Routes** menu.

You will be asked to confirm before CompetitionPilot actually deletes anything.

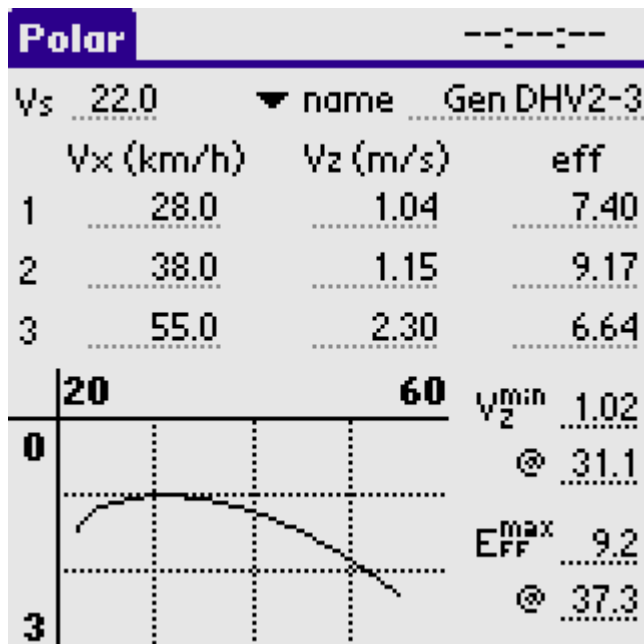
## Creating a new polar

## [index](#)

Providing CompetitionPilot with an accurate description of your wing characteristics in terms of its polar curve allows the program to calculate several parameters more precisely.

Efficiency, speed to fly and arrival height are some of the parameters that require the knowledge of the polar curve to be calculated. Also the wind-vector calculation uses some data from the wing polar, that is the stall and the maximum air-relative speed.

To set your wing data, open the polar-setup page (menu: Options/Polar)



CompetitionPilot shows the selected polar. After the first installation two predefined polars, corresponding approximately to a DHV 1-2 and a DHV 2-3 wing, are automatically created.

It is possible to load one of the saved polar curves by the drop-down list **name**.

After modifying the values, as described in the following, and/or the name you can save the new polar curve, substituting the modified one, by selecting the menu item **Polar/Save**. If, on the contrary, you want to preserve the old polar, you can use the menu **Polar/Save as new**: a new polar will be added to the list.

If you exit the page without having saved the new polar, CompetitionPilot will ask if you want to save the new data before exiting.

## Creating a new polar curve

The polar curve of a given wing can be determined quite precisely with three pairs of values, each pair being composed by the horizontal speed (Vx, in km/h) and the corresponding vertical speed (Vz, in m/s).

**Warning:** the last point (number 3 in the page) should correspond to the maximum speed of your wing. This allows CompetitionPilot to optimise the speed-to-fly and the wind calculations.


In order to make your life easier, CompetitionPilot allows to enter the value of the efficiency (eff) instead of the vertical speed. If you change one of the efficiencies, CompetitionPilot will calculate the corresponding Vz, given the current Vx value. Similarly, if you modify Vz, CompetitionPilot will calculate the corresponding efficiency value.

When a value is modified, the program draws the polar and calculates the minimum vertical speed (Vz min) of your wing, the maximum efficiency (Eff max) and the respective horizontal speeds.

Not all the combinations of pairs of values correspond to a valid polar curve. If it is the case, CompetitionPilot warns by not drawing the curve and setting to zero the minimum-vertical-speed and maximum-efficiency values. Furthermore, if you try and exit the polar-setup page without having a valid polar curve CompetitionPilot will show a warning message and will keep using the previous polar.

Polar		00:39:20	
Vs	22.0 km/h	name	Gen DHV2-3
	Vx	Vz	eff
1	28.0 km/h	0.95 m/s	8.18
2	3.0 km/h	1.20 m/s	0.69
3	55.0 km/h	2.30 m/s	6.64

**Error**

 **Invalid data. The polar will not be updated.**

OK

For maximum accuracy, especially at the lowest speeds, CompetitionPilot allows to enter the stall-speed (Vs) of the wing. This also allows a higher precision when calculating the wind speed.

When you exit the page, the polar curve shown will be the one CompetitionPilot will use for further calculations.

## Setting up a task

## index

CompetitionPilot can manage the several kinds of paragliding tasks: speed run and race to goal, with start on entry or on exit and with cylinder and/or line goal. The radii for the start, goal and other waypoint cylinders can be individually set. The task can be configured from the [task-management](#) page.

**Race SetUp** --:--:--

task ▼ **race to goal**

route ▼ **MonteBronzone**

start ▼ **B67135** ▼ **on entry**

radius (m) **5000**

opens at **13 :0** closes at **15 :0**

duplicate start as waypoint

▼ wpt radius (m) **400**

cylinder goal radius (m) **400**

line goal length (m) **400**

Done Stop task Advanced

Use the first drop-down menu (task) to choose among speed run o race to goal.

The route to follow must be set by means of the drop-down list **route**. If the route does not already exist in memory you can create it by choosing **new route...** from the list.

A seguire si trovano altri due menu che permettono di impostare la boa di start e il tipo di start (in ingresso o in uscita) e tre campi numerici per definire il raggio dello start e gli orari di apertura e chiusura.

The start waypoint, the start type (on entry/on exit), radius, opening and closing times can be set by means of the following controls.

The **duplicate start as waypoint** checkbox must be checked when the start waypoint have

to be validated also as if it were a normal waypoint after having validated it as "start".

The other fields allow to set the waypoint radius and the goal type (line, cylinder or both) and its size (radius and/or line length.)

Starting from version 1.6.1 it is possible to set up the waypoint radii individually.

To activate the task and start the race, press the **Start task** button. The task page will be closed and a new page will be shown with the route details.

## Task detail page

**Route detail** ---:---:---

Active route: **AlpeQuaggione2**

▼ Name	▼ A.dist	▼ Hdg
<b>D01131</b>	0.0	↖
B04055	2.13	↖
<b>B03112</b>		SS
B03112	4.16	↖
B06058	8.27	↖
X01131	12.0	↖
B10091	16.8	↖
X06058	21.5	↖ ↓

show optimised distance

Done Stop task

This page summarises the details of the selected route, whose name is shown at the page top. The waypoints composing the route are listed below. The start waypoint is highlighted by means of bold characters. For each waypoint it is possible to have the short name or the description displayed, by using the drop-down list above the first column of the list:

▼ Name	▼ A.dist
Name	0.0
Descr	2.13
<b>B03112</b>	
B03112	4.16

For each waypoint it is also possible to show two among the following items:

- Partial distance (P.dist): distance between a waypoint and the previous one;
- Accumulated distance (A.dist): total accumulated distance, starting from the first waypoint;
- Heading (Hdg): graphical representation of the heading from a waypoint to the following. A triangle pointing toward the top of the page indicates North;
- Radius (Rad): radius of the waypoint.

You can choose which items have to be shown by means of the drop-down menus above the columns:

Name	Rad	Hdn
D01131	Accumulated dist...	
B04055	Partial distance	
<b>B03112</b>	Radius	SS
B03112	Heading	
B06058	400	↗

The last column shows the peculiarities of the waypoints: **SS** marks the start waypoint; **G** is the goal waypoint. **G** is followed by the letters **c** or **l** depending on the goal type (cylinder or line.)

If, as in the case shown in the previous figure, the start is also a normal waypoint (that is, the **duplicate start as waypoint** checkbox was validated) its name is shown twice: the first occurrence, in bold characters, indicates the start cylinder. The second, in plain characters, highlight that it must be validated also as a normal waypoint. In this case the distance and heading will be shown only for the second occurrence.

The **Show optimised distance** checkbox, when selected, shows the distances corresponding to the optimised route. Whether it is checked or not, CompetitionPilot calculates the final-glide data always taking into account the optimised route. For further details read: [final-glide calculator](#).

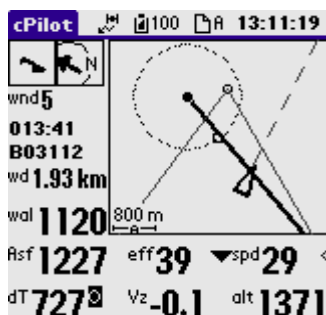
The **Stop task** button stop the navigation of the route and disable the selected task.

**Warning:** before taking off, it is important to check the time shown by CompetitionPilot in the top-right corner of the page. If it is not correct, you have to adjust it by means of the **GPS time offset** parameter in the options page (menu: Options/Program). This adjustment is needed when the GPS time (shown in the top-right corner of the page) differs from the local time. In this case you have to enter in the **GPS time offset** text field the number of hours needed to adjust the time.

**Warning:** if you do not adjust the time accurately, CompetitionPilot will not manage correctly the start-window opening.

## Race to goal

If the task is a **race to goal**, CompetitionPilot takes into account the time set in the **Start time** field to manage the window opening.



During the wait for the start window to open, the start cylinder is drawn as a grey circle and the remaining time (in min:sec) is shown above the ground speed (in the default display configuration). If active, the **dT** parameter indicates how early/late you will arrive to the start cylinder if you glide to it from where you are at the speed to fly. It also takes into account any waypoint that is to be validated before the start waypoint.

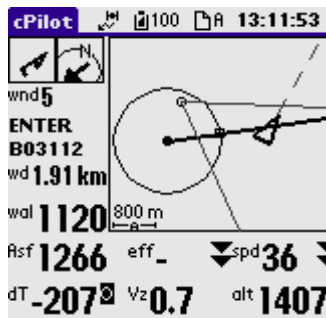
In the case shown in the previous figure, for example, **dT** indicates that if you went directly to the start cylinder at the speed to fly you would arrive 727 seconds (approx 12 minutes)

before the opening of the window. It's probably a better option to stay in a good thermal and wait.

Beeps are generated when  $dT$  is equal to 60, 30, and 20 seconds.

When  $dT$  is zero, CompetitionPilot gives an additional acoustic alarm to tell you that if you go immediately to the start cylinder travelling at the speed to fly, you will arrive exactly at the opening of the window.

If the value of  $dT$  is negative, then you will arrive at the start cylinder after the window opening.



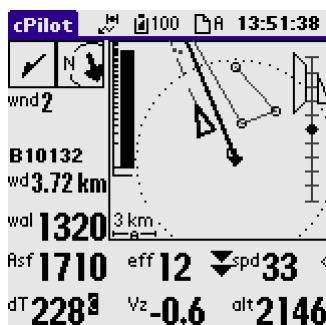
When the start window opens, CompetitionPilot will emit another alarm and the word **Enter** (or **Exit** if the start is on exit) will substitute the time remaining to the start. The cylinder will be drawn as a solid black circle.

## Speed run **New**

In this case you can validate the start waypoint several times: until the window closes, you can choose whether you want to proceed to the following waypoint or you prefer to validate again the start pylon.

To make your choice easier, after the first validation of the start CompetitionPilot will start to guide you to the following waypoint while still showing the start cylinder. This gives you a visual reference on the map of your position with respect to this cylinder.

To differentiate the active waypoint cylinder from the start one, the latter will be drawn as a dotted circle, as in the following figure (taken from a competition with a start cylinder radius of 7 km):



Additionally, the  $dT$  parameter will be referred to the start closing time, as indicated by the "C" letter on a dark background drawn on the right of the  $dT$  numerical value. When  $dT$  is positive, you can still reach the start cylinder before the window closes in the case you decide to validate it again.

The "wait for start" page will be shown until the window closes or until you validate the following waypoint.

## Start on entry

Some tasks with the start on entry require that, after entering into the start cylinder, you also have to validate the start waypoint as if it were a normal waypoint. This means that if the start radius is 2 km, for example, and the other waypoints radii are 400 m, then the start is considered valid if you arrive at a distance from it of less than 2 km, but before proceeding to the next waypoint you still have to enter into the 400-m-radius cylinder centered on the start waypoint.

CompetitionPilot manages this situation without requiring you to enter the start waypoint twice in the route. You just have to select the **Duplicate start as waypoint** option in the task-setup page.

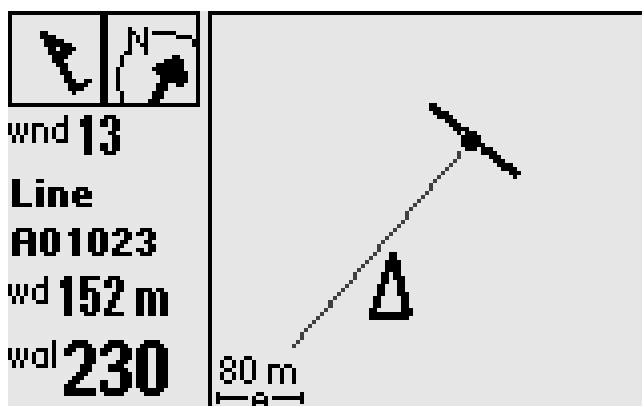
## Start on exit

In this case the option **Duplicate start as waypoint** is meaningless and is ignored by CompetitionPilot.

The **dT** parameter is shown if the task is a race to goal.

## Cylinder and/or line goal

It is possible to choose among cylinder or line goal or both. The checkboxes near the **cylinder goal radius** and **line goal length** allows to choose the appropriate task goal. You can select one or both of them.



After validating the waypoint preceding the goal, the line goal (if chosen) is shown on the map with a thick line. CompetitionPilot will also draw the line connecting the goal with the preceding waypoint (in grey colour) for an easier identification of the goal line direction.

The first waypoint in the route will **not** ignored.

## Setting up the waypoint radii

Starting from version 1.6.1 of CompetitionPilot it is possible to set the waypoint radii individually by means of the **wpt radius** drop-down menu.



When you choose **set individually** a new page will appear allowing you to enter the radius of each waypoint:

**Radii setup**      --:--:--

Route: **MonteBronzone**

▼ Name

D04097	400
<b>B67135</b>	5000 SS
B67135	400
B71040	400
B62116	400
B51082	400
A01016	400 Gc

wpt radius (m) **400**.....

Done    Set selected    Set all

The name of the selected route will be shown at the top of the page. By means of the **name** drop-down menu you can choose whether to list the waypoints by their short name or the description.

If the start is also a waypoint (that is the **duplicate start as waypoint** checkbox in the task-setup page is activated) its name is repeated twice in the list: the first item (in bold characters) identifies the start pylon, the second item (in plain characters) the normal waypoint. In this case you can change the radii of both.

To set the radius of one particular waypoint, you have to select it from the list, enter the value in the **wpt radius** field and press the **Set selected** button. To change the radius of all the waypoints (except for the start and goal ones), press the **Set all** button.

To return to the task-setup page, hit **Done**.

## Final-glide calculator

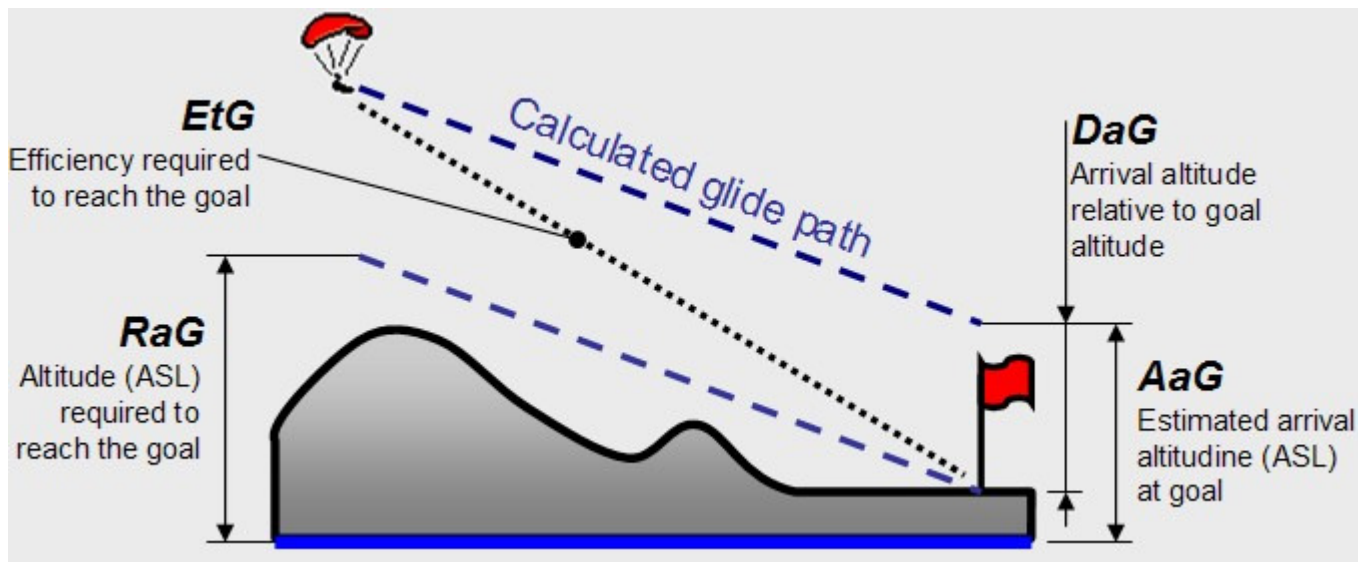
## [index](#)

**CompetitionPilot** calculates the arrival height at Goal at the speed-to-fly taking into account the estimated wind speed and glider polar. This allows the pilot to choose accurately when to leave for the final glide to goal.

Four different fields are available to show the calculation results:

- **Eff to Goal (EtG)**: efficiency required to reach the goal;
- **Alt. at Goal (AtG)**: estimated arrival altitudine (ASL) at goal;
- **Rel. alt. at Goal (DaG)**: arrival altitude relative to goal altitude;
- **Requir alt to Goal (RaG)**: altitude (ASL) required to reach the goal.

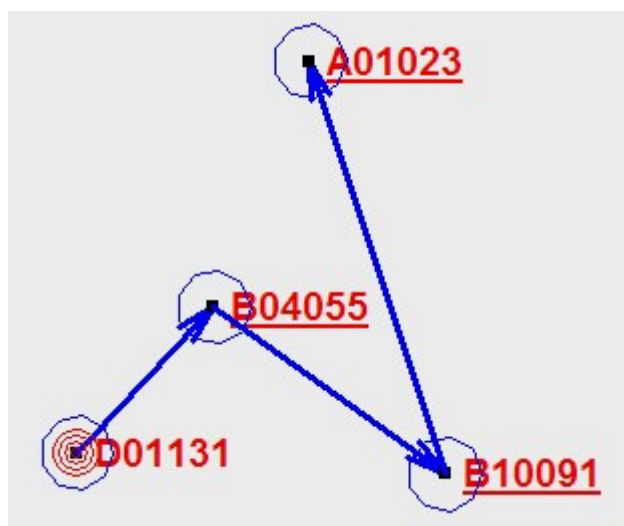
These parameters are shown schematically in the following picture:



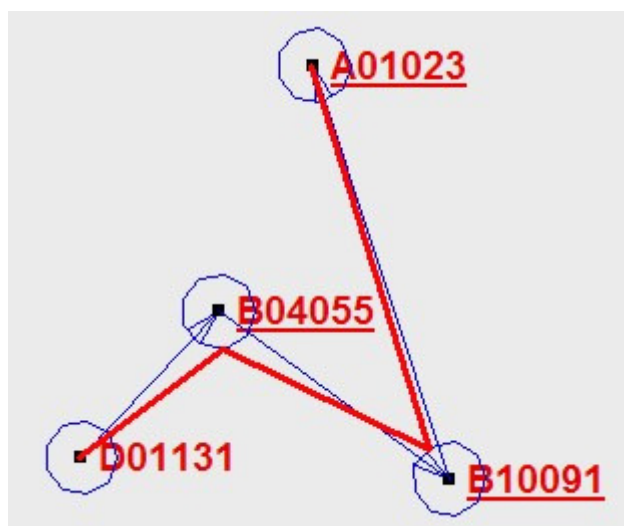
### Route optimisation

To perform the calculations, CompetitionPilot takes into account the optimized route, that is the one that allows to validate all the remaining waypoints while minimising the route length.

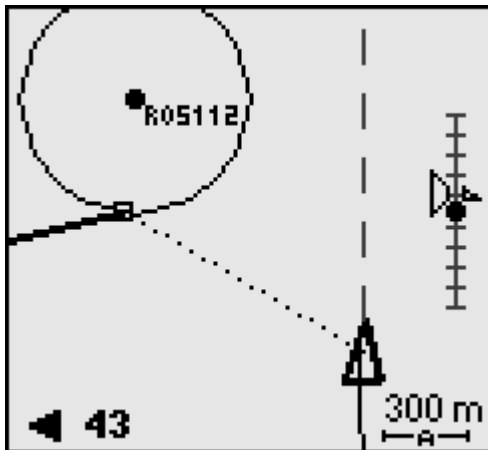
In the following example, the centre-to-centre route is 10 km long:



The optimised-route length is 8.7 km:



During your flight, the best point to enter the next waypoint cylinder is shown as a small square on the border of the cylinder or inside it. Also the dotted line showing the direction to the next waypoint, which can be activated from the map page (menu: **Options/map**), and the direction to the second-next waypoint (thick black line) follow the optimised route:



CompetitionPilot can automatically show one of the saved display configurations when the arrival height at goal is larger than a given threshold that can be set from the page **Options/Display SetUp** in the field **Final glide when DaG > \_\_\_ m**.

In the following picture, CompetitionPilot is set to show automatically the "glide" configuration when **DaG** (the arrival height above goal) is more than 200 m.



When this condition is met CompetitionPilot warns the pilot with an acoustic alarm.

If, during the final glide, **DaG** goes back to a negative value (that is, CompetitionPilot estimates that you are not going to reach the goal with a single glide) the **generico** configuration will be shown again.

**Map autozoom**

**index**

To avoid distracting the pilot during the flight, **CompetitionPilot** is conceived in such a way that it does not require almost any pilot input: if correctly setup before taking off, it can manage the entire task or your XC flight without requiring you to press any key or to use the

stylus.

To this end, **CompetitionPilot** offers two different map autozooms:

- next-waypoint autozoom;
- thermal autozoom.

The former modifies the map scale as you approach the waypoint so that you have an optimal representation of your position with respect to the cylinder. The latter set the map scale to a predefined value (that you can set from the map-options page) when you start circling and climbing in a thermal.

## Next-waypoint autozoom

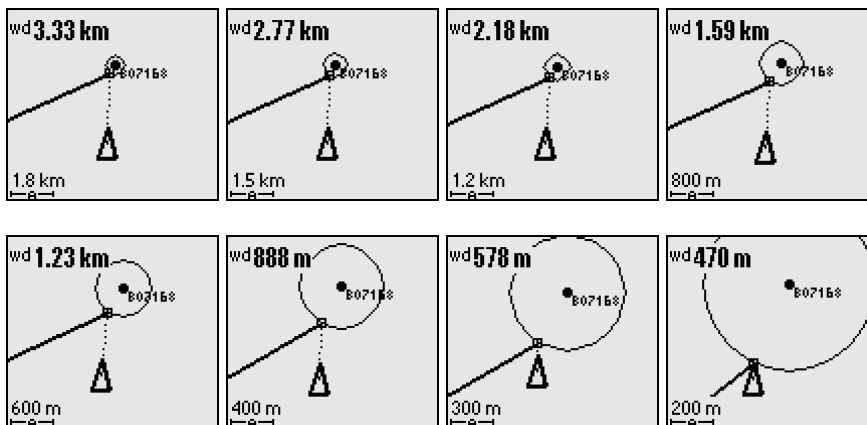
This feature is indicated on the map scale by an "A" character: 

You can activate it simply by touching the display in the map area.

If you want to disable it and change manually the map scale, press the palm **up** or **down** keys. When the next-waypoint autozoom is disabled, the map scale does not show the "A":



Here is how **CompetitionPilot** changes the map scale as you get closer to the next waypoint:

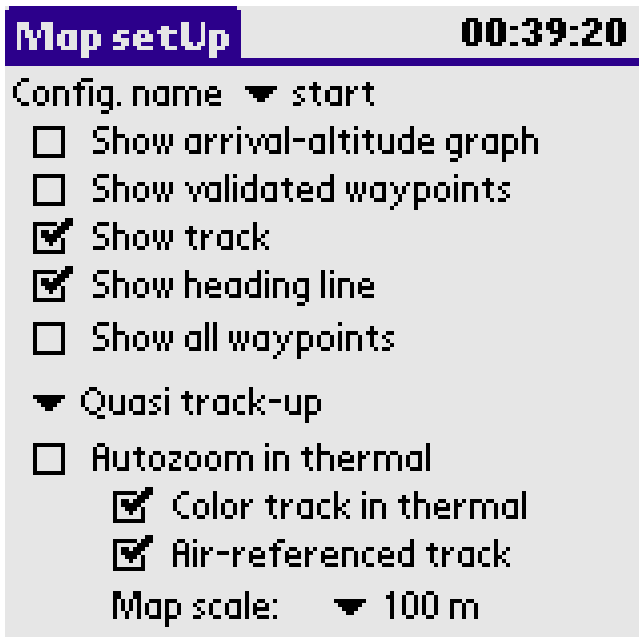


Please note that even if the waypoint that follows the next one is not visible in the map owing to the chosen magnification, the direction to it is always shown as a thick, black line.

## Thermal autozoom

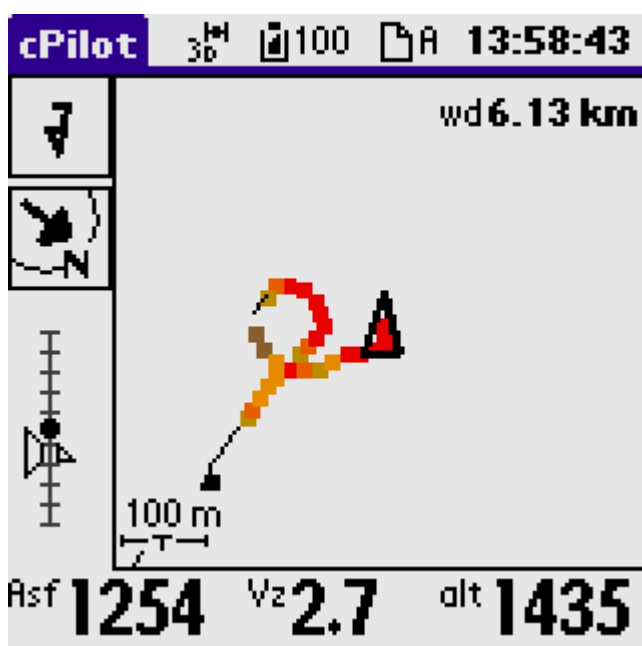
You may enable and configure the thermal autozoom from the map options page (**Options/Map**), by selecting the **Auto-zoom in thermal** checkbox.

The map scale to be used while circling in a thermal can be set from the popup list **Map scale**.



By enabling the **Color track in thermal** option the track trail will be shown as small squares. Their color and size will depend on the measured vertical speed, from blue and small (climbing, but not too fast) to red and big (yahoo!). The red color indicates that the instantaneous vertical speed is more than twice the recorded average climbing rate. Regions connected by the black line correspond to negative vertical speed (sink.)

On 2-bit-display devices (as the m105) that can show only two different gray levels (plus black and white), bigger climbing rates will be represented as darker squares.



If the thermal autozoom is enabled, when you start circling in a thermal the map scale will switch to the value selected in the **Options/Map** page and the track trail will be shown in colors, if you activated this option. The map will NOT be enlarged in full screen mode.

On the other hand, CompetitionPilot's characteristic that allows to design different display configurations and to assign them to specific flight conditions (waiting for start, thermal, etc...) allows creating a versatile thermal autozoom: indeed, it is possible to design a display with all the infos that you would like to have while thermalling, with a custom-sized map and with the map thermal autozoom enabled. Then you can assign it to the "thermal" condition, thus having CompetitionPilot showing your display while climbing.

The procedure to follow is:

- design a new page from **Options/Display** and modify it ("modify" button, page bottom) by changing the map size and the fields shown;
- enable the autozoom feature, from the **Options/Map** page. Then, back to the **Display SetUp** page, assign the newly created page to the "thermal" condition.

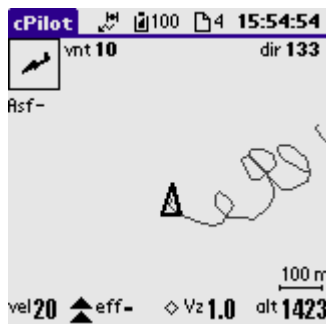
Now, every time you start circling in a thermal, CompetitionPilot will show the page that you created.

In this way you have the autozoom feature AND you can also choose which data to show while climbing!

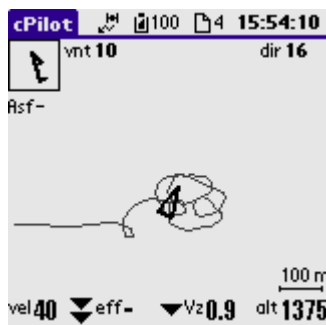
## Air referenced track: cancelling the wind drift in thermal

**This is a new feature...** By enabling this option, when the thermal autozoom switches on CompetitionPilot takes into account the calculated wind speed to draw the track trail relative to the air rather than to the ground, cancelling the wind drift. With this feature, centering a thermal will be much more intuitive (I hope).

### Ground-relative track trail:



### Air-relative track trail:



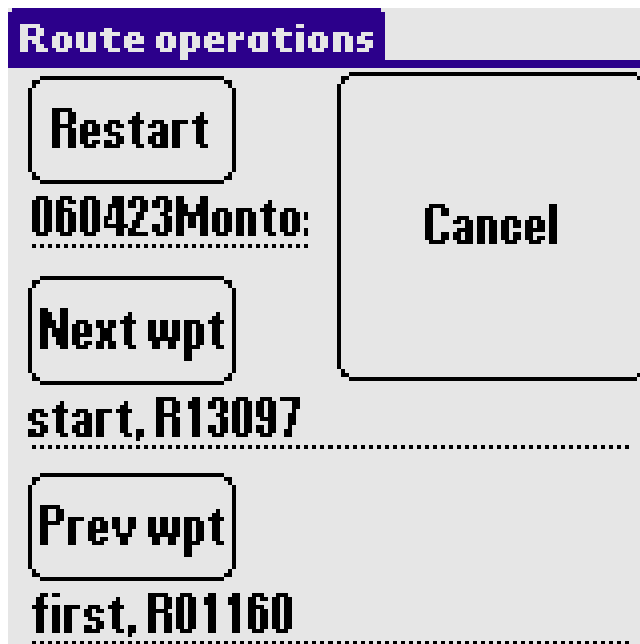
**Skipping to next/previous waypoint during flight**

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While flying a task it is possible to skip manually to the previous or following waypoint or to restart the route navigation by pressing the "ToDo" key.



The manual-selection page is shown for five seconds. If, during this period, no button is pressed the page will automatically close.



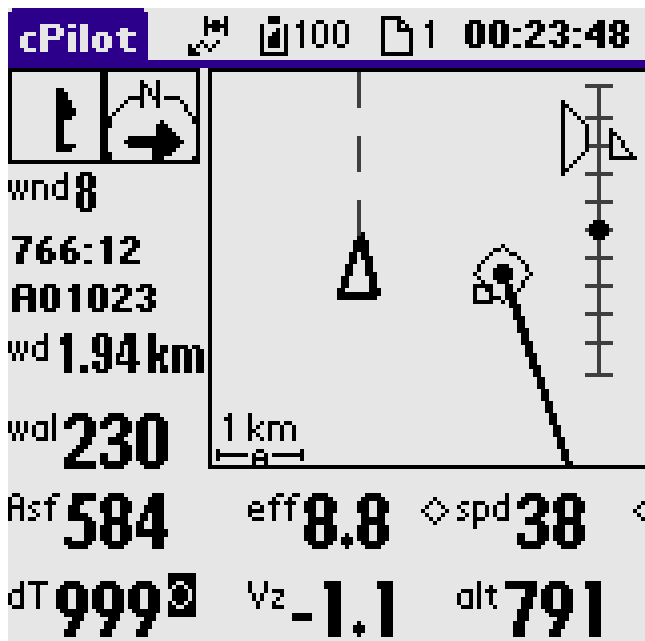
The **Restart** button restart the current-route (the route name is shown below the button) navigation from the first waypoint.

The **Next wpt** and **Prev wpt** buttons skip to the following or previous waypoint. The name of the waypoint that you will skip to and its kind (start, goal, normal waypoint) are shown below the corresponding key.

## Arrival-height ruler

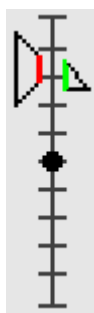
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The ruler displays the estimated arrival height at the next waypoint flying at maximum efficiency and at speed to fly. It can be shown in the map, centered on the next waypoint or added as an additional field in any location of the display. In the latter case it is possible to change its size by means of the + and - keys in the display-setup page.



## How to use the ruler

The solid circle in the middle of the ruler represents the next waypoint. Each tick corresponds to 100 m of height above or below the waypoint.



The trapezoidal shape shows the arrival height at maximum efficiency. You have to take into account the smaller base, drawn as a red segment in the previous figure. This segment indicates a region of the ruler that goes from 280 m to 380 m above the waypoint (remember that each tick corresponds to 100 m); this means that at maximum efficiency you are supposed to arrive at the cylinder (not at the waypoint!) with approximately 280 to 380 m of height above the waypoint. The "optimistic" calculation, that is 380 m in this example, is determined by CompetitionPilot by taking into account zero lifting/sinking air during the transition. The "worst case" condition, 280 m here, is calculated by allowing for an average sink during the transition equal to half the McCready parameter.

Similar considerations apply to the arrival height at speed to fly. In this case the estimated arrival-height range is drawn as a triangle. The green segment in the figure shows the results of the calculations: here you are supposed to arrive at the next cylinder with approximately 250-350 m above the waypoint.

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