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INSTALLATION AND OPERATING MANUAL COCKPIT DISPLAY

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1 Identification

1.1 Scope

This is an operating manual describing the procedures for using the *CDTI software* developed by SystemKraft AB.

1.2 System Overview

The software is used for display of maps with the display of positions of aircraft and vehicles equipped with the VDL Mode 4 transponders. Flight information and weather reports received via FIS-B is also possible to display. The software can run on a Pocket PC with the software Windows Pocket PC 2003 and have been verified on the following brands:

- iPAQ h2210
- iPAQ h5500

1.3 Document Overview

The purpose of this operating manual is to describe how to use the system. The document starts with the instructions how to install the software and connect the Pocket PC to the VDL-mode 4 transponder, then followed by a general description of the all the windows in the *CDTI* and a description of all commands in alphabetic order. Finally this document contains a guide of “How To” perform different tasks.

1.4 Related Documents

Document	Reference
1 Product Specification	PS_CDTI:CK3-03:049

1.5 Revision History

Date	Change
0.1 2003-10-13	First Draft
0.3 2004-05-04	Added more text
0.4	Added description of what items are affected by a change of a colour item in the parameters
0.5 2004-05-24	Contents in Option Track Label changed Colour for FPL route is a parameter.
0.6 2004-09-17	Updated the manual for version 0.8 and later of the CDTI software. Description for

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		installing the software on SD Card. Added description for recording and playback. Added default layout of own symbol.
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1.6 Glossary

ADS-B	Automatic Dependent Surveillance – Broadcast
CDTI	Cockpit Display of Traffic Information
DME	Distance measurement equipment
EGOA	Enhanced General aviation Operations by ADS-B.
FPL	Flight plan
FIS-B	Flight Information Service – Broadcast
ICAO	International Civil Aviation Organization
NM	Nautical miles
MID	MapInfo textual and data part
MIF	MapInfo graphics part
MMI	Man Machine Interface
PDA	Personal Digital Assistant
SCAA	The Swedish Civil Aviation Administration
TSA	Temporary segregated areas
VIP	VDL Mode 4 Interface Protocol
VOR	VHF omnidirectional radio range

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2 Installation and Setup

2.1 General

To install the system as described below, you must have the Windows Pocket PC 2003 operating system for installed on your Pocket PC. Your Pocket PC should at least have 64 MB internal memory. For GNSS position and ADS-B data the serial port must be connected to a VDL-mode 4 transponder.

2.2 Installing of the CDTI Software

To be able to load any software you must have the ActiveSync version 3.7 or later installed on your host computer.

Connect the Pocket PC to the host computer via the USB interface. ActiveSync will automatically detect the Pocket PC.

When the dialog box “New Partner” is displayed select the “guest” button and follow the instructions.

When the Pocket PC is connected, use the Explorer to copy the files from the CDTI Installation CD. At present there are no automatic installer. Select the CDTI directory on the installation CD and drag and drop it on “My Mobile Device” or to your “Storage Card” directory. All files are “write”-protected. If you want to change any setting such as colours, maps you must remove the “write”-protection on the parameter file. To do this copy “param.txt” under the directory “cdti” and rename the original file. Without the file “param.txt” the system will not start.

The installed files are now located under “My Documents\cdti” or “SD Card\Cdti” on your Pocket PC. If you have installed the software on the SD Card you do not need to reinstall the software if your battery is out of power.

If you want to connect the start of the CDTI to a button, copy and paste a short cut to the cdti.exe to the directory \Windows\Start Menu\Programs\ and then select from the Start Menu Settings-Personal\Buttons and add the shortcut to CDTI to the button.

2.3 Connection to the VDL mode 4 transponder

With the bisync cable, delivered with the Pocket PC, connect one end to the Pocket PC and the 9-pole connection to the transponder.

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2.4 Start

To start the application, click the “cdti.exe”- icon in your install directory or use a button (see above). The start time depends of the number of coordinates in the maps. Normally it takes about 10-30 seconds.

If the mode is “Moving Map” (see MMI - Option Track) and the CDTI is connected to a VDL-mode 4 transponder the displayed picture is automatically centred to your current location.

2.5 Stop

To stop the application, select **Exit** from the main menu. At exit all the changes made in the Options Commands are saved to the file memory. Note if you tap the x-icon on the top of the window the application continues to run in the background.

2.6 Maintenance

Due to that different logfiles can be active the user should check the subdirectory “log” and delete old files to free memory in the file system.

The following types of logfiles exist:

- SysLog: Always active
- Data log: Active when set in the parameter file (see technical parameters Recording/Playback)
- Vip log: Active when set in the parameter file (see technical parameters Communication)

2.6.1 SysLog

For maintenance purpose the system logs events in a file (“SysLog.txt”) The log file contains the start/stop time and other system status of importance.

The following events are saved in the log file:

- Incursion events
- Alerts for missing GNSS position from the own transponder
- System messages
- System errors

Each message in the file has the following layout:

<module reporting; line number> <time and date> <description of the event>

Example:

Rims.cpp;161 040907-065526: Incursion ESCF 08/26

Vip.cpp;472 040907-071000: Crc error

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3 MMI - Man Machine Interface

3.1 MMI General

The CDTI has the following types of windows:

- Geographical window for map and track display
- Option windows for settings
- Text window for Met reports

This manual organises the commands in alphabetical order. But to group the commands according to their function, the notation is sometimes reversed, as in "Label, Rotate" for "Rotate Label". This manual refers to these command buttons or menu selections using bold type, as in **Option-FPL**, and such.

For interaction the user uses the "Pen" or the buttons on the Pocket PC to select the commands. The association of buttons to commands can be set by the user (see [Options Buttons window](#))

3.2 Geographical Window

Heading indicator

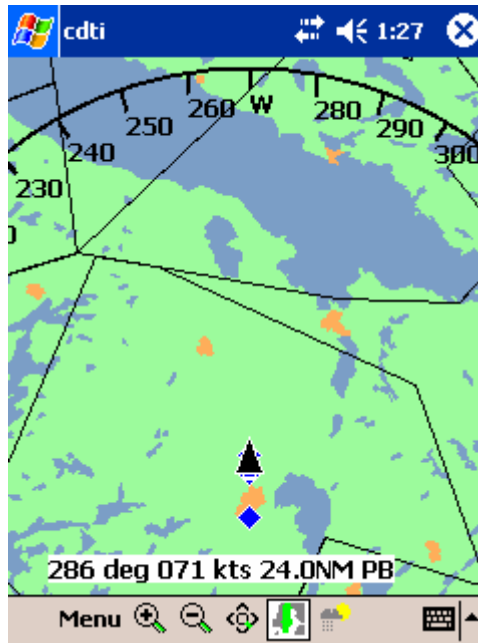
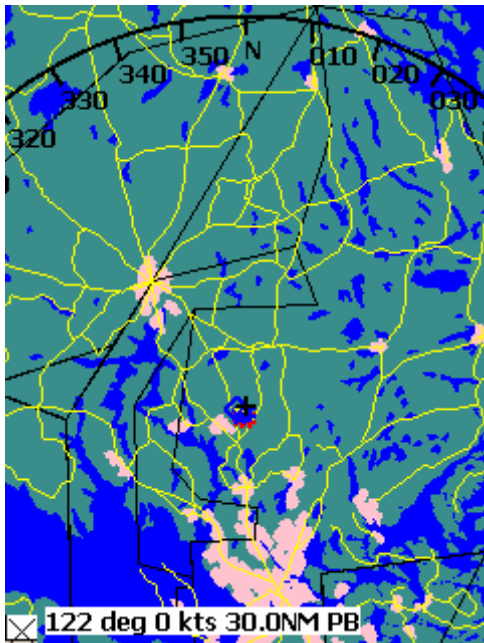


Figure: Geographical window with Moving map and full screen mode

Figure: Normal screen mode. Moving and head up

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The geographical window has a pre-set view that defines the display centre, maps to display, label size, colours and other attributes. The pre-set view is defined in the parameter file. The user can change the pre-set view (see [Option Track window](#))

3.2.1 Map Modes

The geographical window can be displayed in two modes: Moving map- or fixed map-mode.



In moving map mode the map is moved along with the position update of the own aircraft. The map can be oriented in north up or heading up (see [Option Track window](#)) . In moving- and heading up mode the direction indicator is updated which shows the heading of own aircraft.

In fixed map mode the geographical centre of the window does not change when the own aircraft position is updated. However the user can change this centre (command Offcentre).

3.2.2 MapInfo, Import


The system can import maps in MapInfo Interchange format. To import a map in MapInfo format place the mif-file in the maps-directory. To select the map for display see the command Map Add below.

Note that the layout of the symbols are defined by parameters in this system and hence may differ from the MapInfo definition. Also the line types, fonts and fill patterns differ from the MapInfo definition. Objects of Arc, Rounded Rectangles and bitmaps are not implemented.

Note that navigation points (dme, vor etc) are displayed as:  or 

3.2.3 Track Display

A track is a vehicle or an aircraft equipped with a VDL mode 4 transponder. The following symbols are used:

 -own track. The own symbol is rotated to show the direction.

 - other aircraft

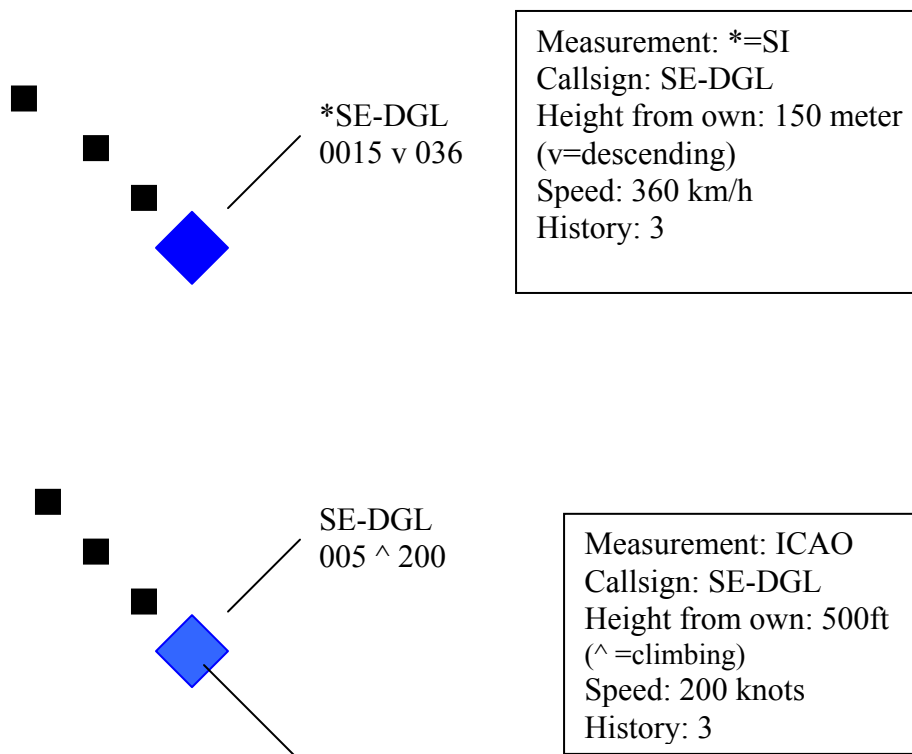
 – other vehicles

• – history position symbol

When the current position is updated with a new position the old position is changed to a historical position symbol . The user can select 0,1,2,3,4,5,10,20 historical positions for the tracks (command **Option Track History**).

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Connected to the track symbol there is a leader line and a label. The picture below shows examples of tracks with label:



3.2.4 Track Supervision Other Tracks

The system supervises the position update of other tracks. If a track has not been updated for a parameter defined time (“miss”) a warning is generated. This warning is generated with a special colour for the symbol (see colour *Terminating tracks*), displayed at the last known position of the track. If the concerned track still has not been updated for a parameter defined time (“term”) the track is deleted from the display.

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3.2.5 Track Supervision of Own Track

The system supervises the position update of own track. If the own track has not been updated for a parameter defined time (“nonav”) an alarm is generated. This alarm is generated with a text “No Nav” on the display.

3.2.6 Runway Incursion

The CDTI is able to highlight the runway when a VDL Mode 4 equipped aircraft/vehicle is detected within the defined runway volume (see technical parameters RIMS). The highlight means that the runway is marked as “busy”. If own aircraft position is also within the runway volume at the same time when another aircraft or vehicle, then the text “INCURSION” is displayed twinkling on the screen.

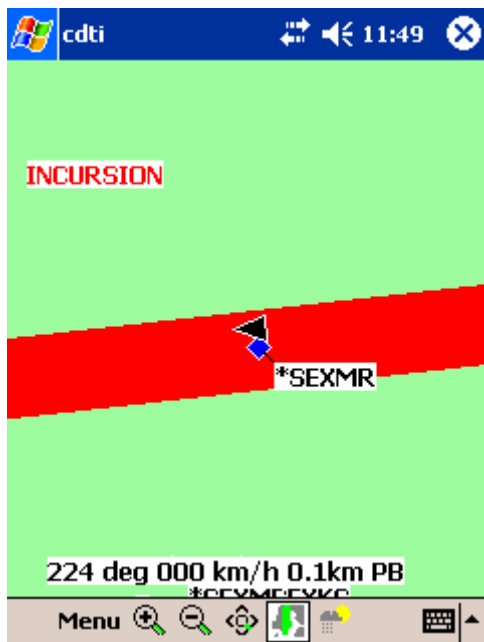


Figure: Runway Incursion



Figure: Runway marked busy

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3.2.7 Temporary Segregated Areas and Control Zones



Figure: The area ES R16A is closed for air traffic.

If there exist FIS-B service in the *VDL Mode 4* the system gets status about control zones and restricted areas. With parameters (see [Option Map](#)) it is possible to define that the system shall automatically display the status of the control zones and restricted areas.

3.3 Option Windows

With the option window the you can change different settings. The following option windows exist:

- Track
- Map
- Font
- Colour
- Flight plan route
- Buttons

3.3.1 Track

To display the Track settings window select **Options** from the main menu and then **Track**. If the overview button (📄) was selected the settings for the “Overview” are displayed.

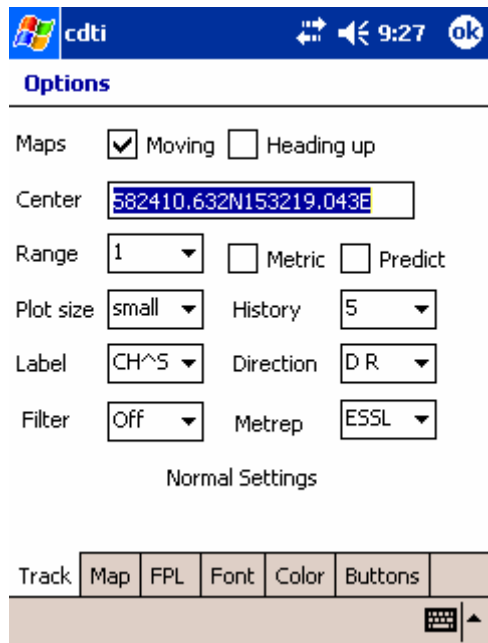


Figure: Option Track window (normal)

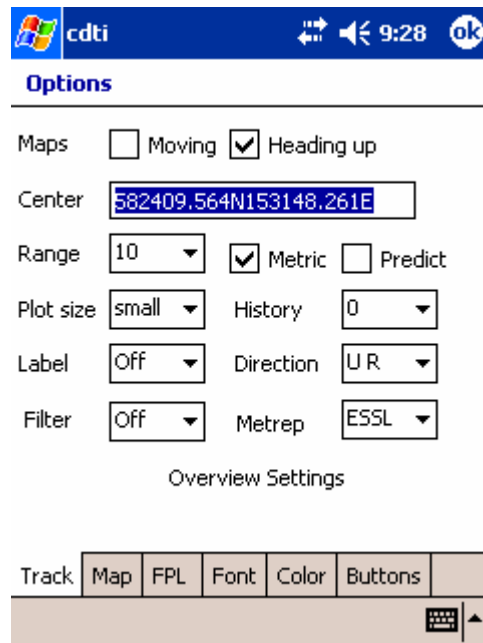


Figure: Option Track window (Overview)

3.3.2 Map

To display the Map window select **Options** from the main menu and then **Map**.

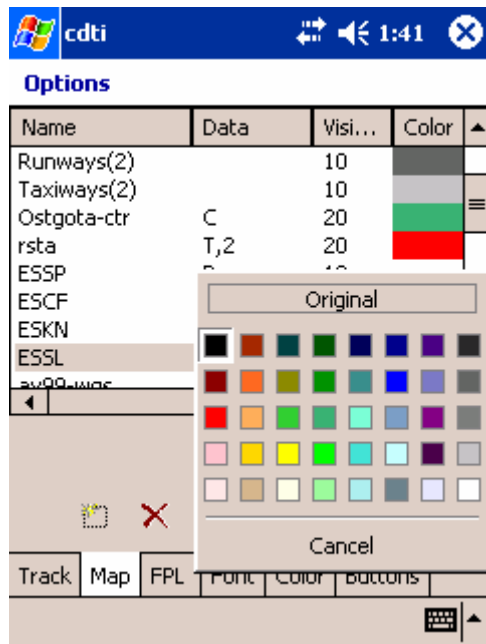


Figure: Option Map window

The field *Visi..* defines if the map shall always be On, Off or displayed when the range, in nautical miles, is less or equal to the given value.

The field *Data* defines if the map contains any of the following types of information:

- N = Navigation or route points
- C = Control zone
- T = Temporary restricted area
- R = Runway for incursion supervision

The figures in the *Data* field defines what fields in the MID-file to be displayed in the map. This data is normally set up by a system manager and should not be changed by the user.

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3.3.3 Font

To display the Font window select **Options** from the main menu and then **Font**.

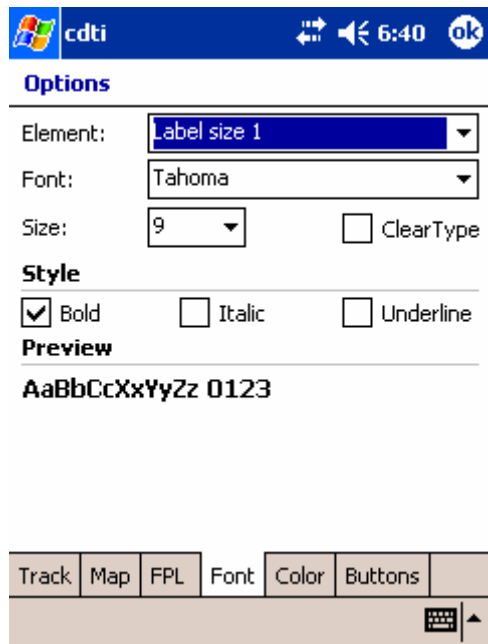


Figure: Option Font window

3.3.4 Colour

To display the Colour window select **Options** from the main menu and then **Colour**.

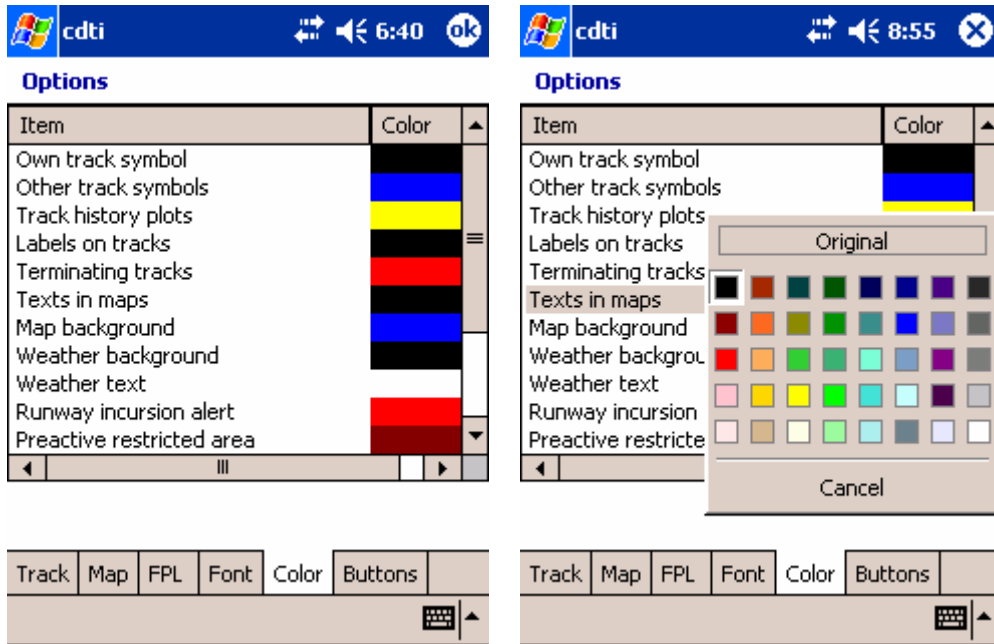


Figure: Option Colour window

Figure: Option Colour window selection

3.3.5 FPL for route editing and display

To display the FPL route window select **Options** from the main menu and then **FPL**

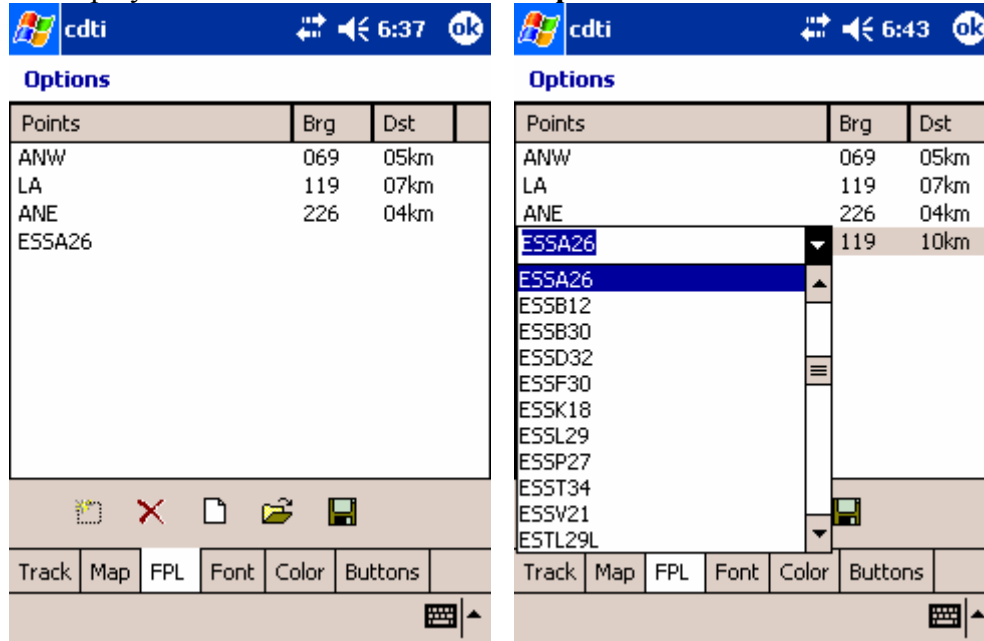


Figure: Option FPL route window

3.3.6 Buttons

To display the Buttons window select **Options** from the main menu and then **Buttons**

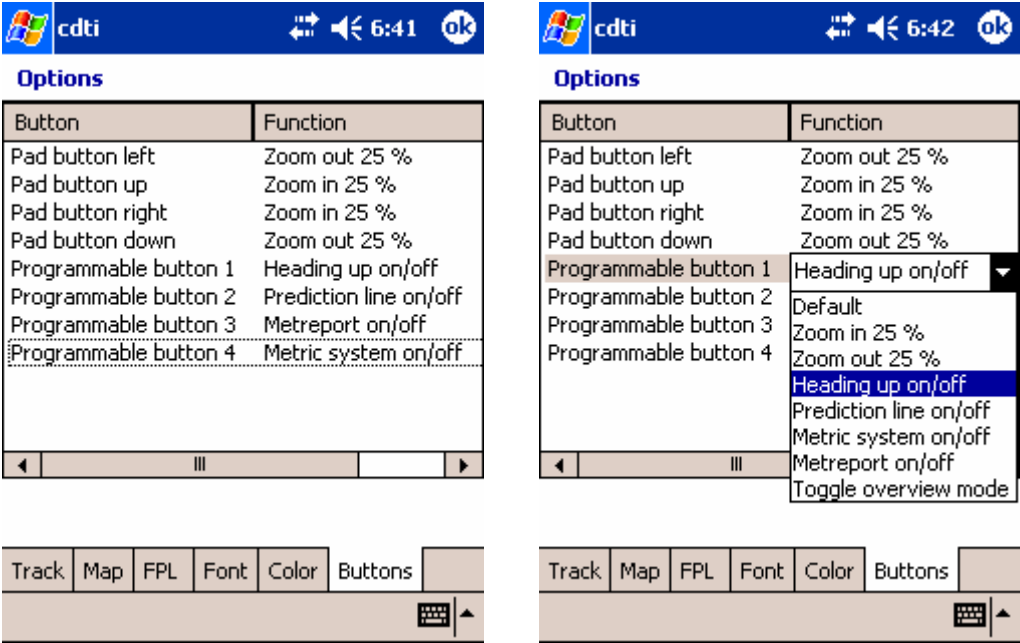


Figure: Option Button window

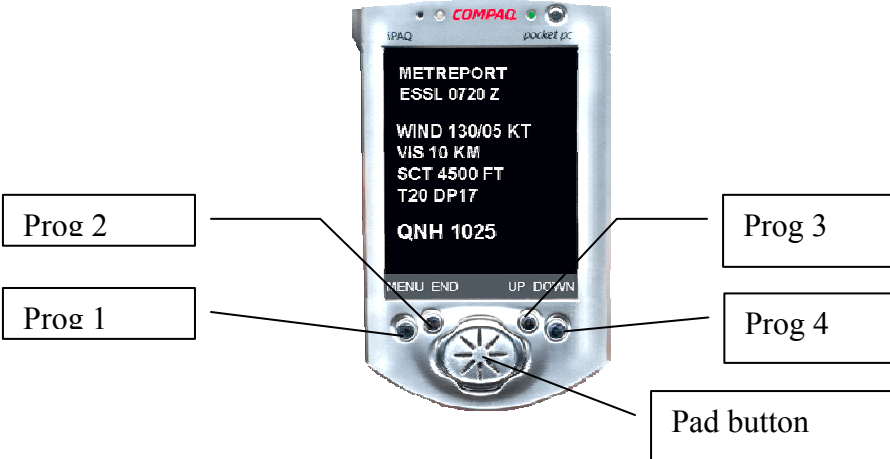




Figure: A Pocket PC with the buttons

Prog 1..4 are the buttons as described in the figure above. Function describes the action for the button. The "Default" means the operation associated with the button in Windows.

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3.4 Text Window

Met reports can be received by the system if there exist FIS-B service in VDL Mod 4 data link. To display a Met Report select the button  in the toolbar. To select the geographical presentation again select the button .

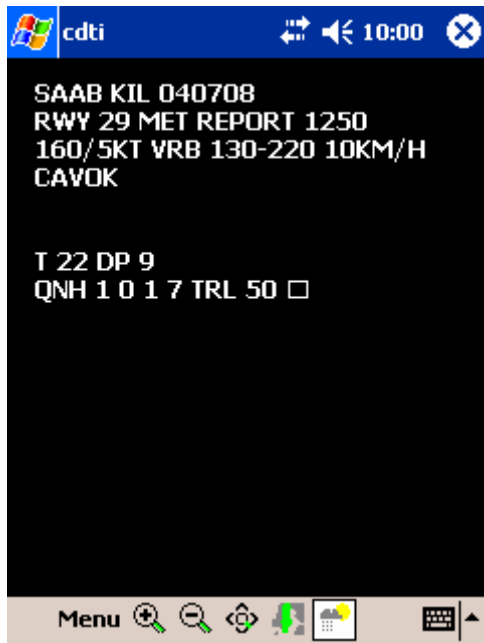


Figure: Met report

In **Option Track** and in menu *Metrep* you can select the airport for which the Met report shall be displayed.

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4 Commands

Below are all commands listed in alphabetic order.

4.1 Buttons

The Pocket PC buttons can be associated with different actions (see window [Option Buttons](#))

To associate an action to a button select **Options** from the main menu and then **Buttons**.

Tap an entry in *Function* and select the action. The following actions exist:

- Default – use Windows default action
- [Zoom in](#) by 25 %
- [Zoom out](#) by 25 %
- [Heading Up](#) On/Off
- [Prediction](#) On/Off
- [Metric](#) On/Off
- [Met Display](#) On/Off
- [Overview](#) On/Off

4.2 Centre using Pen

You can change the centre of the geographical window. To do this tap and hold the pen in the geographical window then select the command **Offcenter** from the main menu. Tap with the Pen in the geographical window on the position you want to have as the new centre. This command is only relevant in flight planning mode i.e. in non moving map mode, since in moving map mode the system automatically adjusts the centre to the position of the own aircraft. Note that you can also change the centre by entering the lat/long position in the *Center* field in **OptionTrack**

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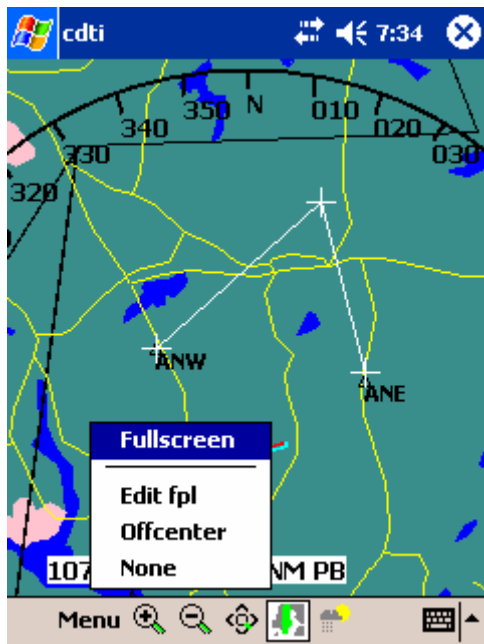


Figure: Popup menu in the Geographical window

4.3 Colours

You can change the colour of the following:

- Own track symbol
- Other track symbols
- Track history plots
- Labels on tracks
- Terminating tracks
- Texts in maps (includes also the compass ring, own data and heading indicator text).
- Map background
- Weather background
- Weather text
- Runway incursion alert
- Pre-active restricted area
- Active restricted area
- Closed TMA
- TMA to be opened
- Open TMA
- FPL route

To do this, select **Options** from the main menu and then **Color**. The colours card file opens, where you can select the colour for each item, as illustrated:

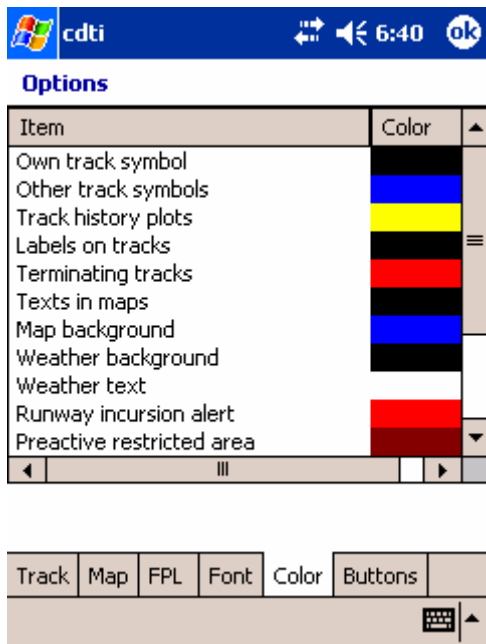


Figure: Option Colour window

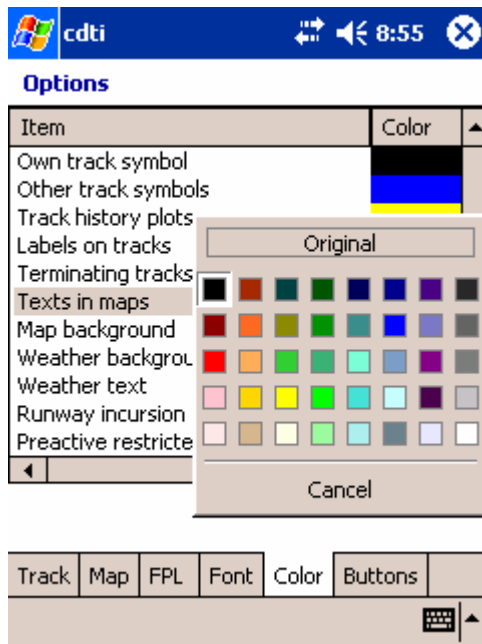


Figure: Select Colour

Note colours for maps are set in the **Options Map**

4.4 Fonts, Setup

Display the window by selecting **Options** from the main menu, then **Font** from the card file menu.

Fonts can be changed by first selecting the type of element from the dropdown list **Element** then selecting the **Font** and **Size** etc (below).

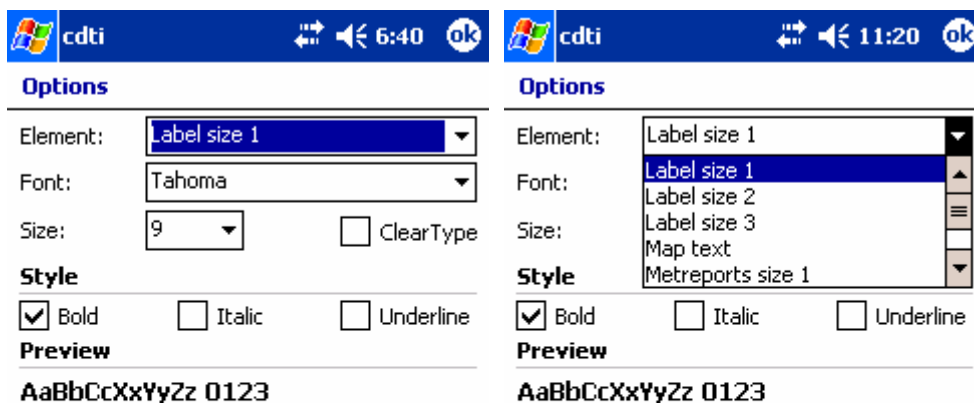


Figure: Option Font

Figure: Option Font Element Select

You can set the font for the following type of elements:

- Label size 1, font used for the label when the plot size “small” is selected (see Option Track)
- Label size 2, d:o but for medium plot size
- Label size 3, d:o but for large plot size
- Map text, font used in the map text and compass ring
- Metreport size 1 , font used for the met report size 1
- Metreport size 2
- Metreport size 3
- Heading text, font used for the display of own speed and direction

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4.5 Full Screen Mode

To display full screen mode select **Full screen** from the main menu. To return to normal display select the X in the lower left corner of the display.

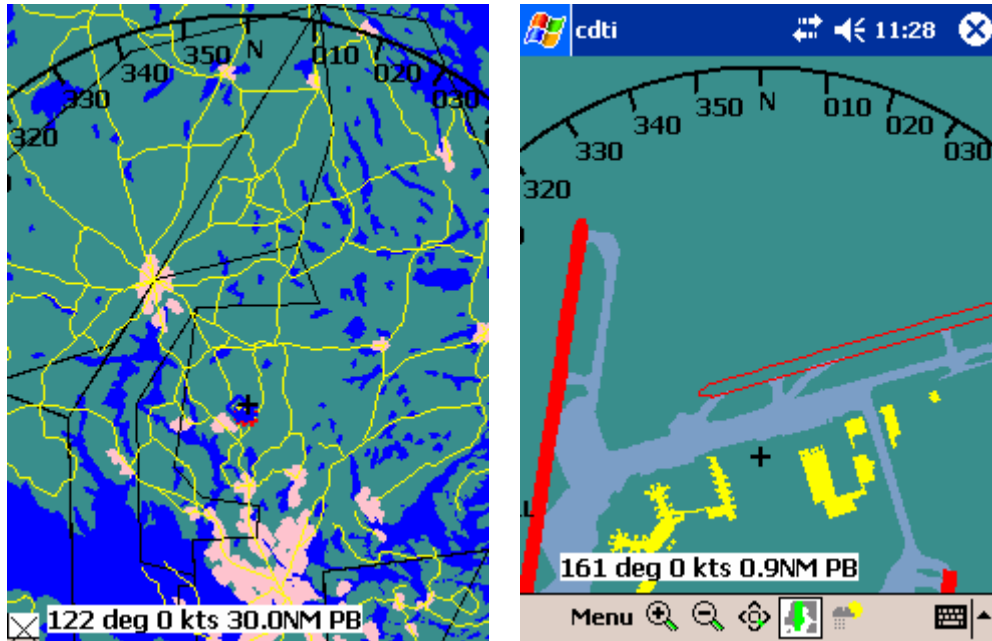




Figure: Full screen mode, moving map north up (typical Overview) Figure: Normal Screen mode

4.6 FPL Add Route Points from list

Tap For entering a new route point. Select the “Add” -button (see [FPL route window](#)). Tap on the new entry and from the dropdown list displayed, select a name or enter a lat/long point manually (TBD). New route points are added to the end of the list. However to insert an entry in another place, tap on the entry where to insert the new route point before selecting the “Add” -button.

4.7 FPL Add Route Points with pen

You can add a route point to a route displayed in the geographical window. To do this tap and hold the pen in the geographical window then select **Edit fpl** from the drop down menu. Tap with the pen in the map. For each tap a new route point is added. If you tap close to a navigation point the system will add that point to your route. Note that if you tap on the last point in the route the system deletes that point. To delete other points you must enter **Option-FPL**.

4.8 FPL Delete Route Point from List


Select a route point in the *Points* list (see [FPL route window](#)). Select the “delete” -button.

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4.9 FPL Edit Route

Select the entry in the *Points* list (see [FPL route window](#)). Select a new route point from the drop down list.

4.10 FPL New Route

To define a new route select the “new route”  -button (see [FPL route window](#)). The *Points* list will be empty. Now you can add points in the list.

4.11 FPL Open Route

Select the **Options** in the main menu and then **FPL** (see [FPL route window](#)). Then select the “open”  -button. A file box is displayed. Select the route. The route points are displayed in the list.

4.12 FPL Plot Route

Select the **Options** in the main menu and then **FPL** (see [FPL route window](#)). If a list is displayed return to the geographical window. The selected route is now displayed. If no list is displayed open a route (see FPL Open Route).

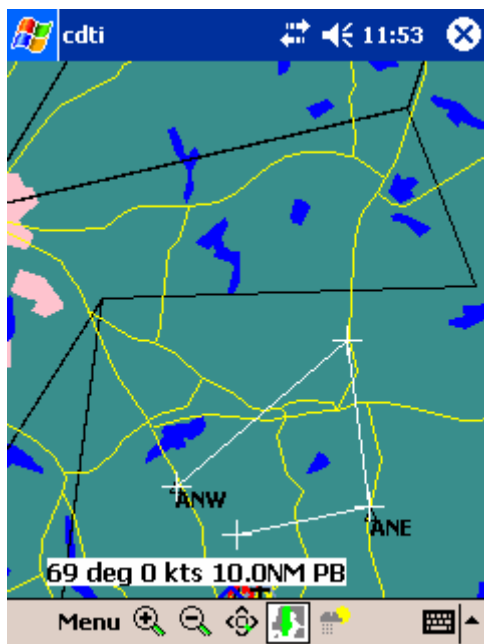




Figure: FPL route displayed

4.13 FPL Save Route

The defined route displayed in the FPL route window can be saved (see [FPL route window](#)). To do this select the “save”  -button. A file box is displayed. Enter a name for the route (see also command FPL Open Route).

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4.14 Geographical Display

To display the geographical window select the “geo”  button. This is the default mode when the system is started.

4.15 Label Rotate

You can rotate the label in 45-degree steps using the **Options-Track** and then select an item in the **Direction** drop down list (see [Track window](#)). You can chose any of U (Up), UR (up-right), R (right), DR (down right) ... etc.

4.16 Label Contents

You can select the amount of information to be displayed in the label for the track. To do this select **Option** from the main menu and then **Track** (see [Track window](#)). Select an item in the dropdown list **Label**. You can select any of **Off**, **C** (callsign), **CH** (callsign, height difference to own aircraft), **CH^** (callsign, height diff, climb/descend indicator) or **CH^S** (...+Speed)

The height difference is displayed in 10th meter for the metric system and for ICAO in 100rds of feet.


The speed is displayed in 10th km/h for the metric system and for ICAO in knots.

When the metric system is selected an asterisc (“*”) is displayed in front of the callsign in the label.

4.17 Label Size

See command Track Size

4.18 Map Add


You can add own maps (in MapInfo Interchange format) to the system. To do this the map must be located in the directory “Your install directory”\cdti\maps”. Select **Options** from the main menu and then **Map**. Select the “Add”  - button and select the “keyboard” and enter the name of the map (without file extension) (see figure [Option Map](#)).

4.19 Map Colour

The map colour can be set for each entry in the map list. To do this select **Options** from the main menu and then **Map** (Figure [Option Map](#)). Select the map in the list. Select the **Colour** field. A dropdown list will be displayed. Select a colour. If no colour is set (“Original”) the default colour defined in the MapInfo file is used. Note that a map entry may contain several different items such as filled areas, lines, text etc. If you set a new colour all items will have the same colour for the selected map.

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4.20 Map Delete

Maps never accessed or displayed can be deleted from the map list. To do this select **Option** from the main menu and then **Map** (Figure [Option Map](#)). Select the map entry from the list. Select “delete” -button. To restore a deleted map see command Map Add. Note that the map is not physically deleted from the file system with this command. If you want to finally remove the map e.g. to gain memory space in your Pocket PC, use the Explorer to delete the corresponding file.

4.21 Map Heading





In moving map mode the map orientation can be set to heading up or north up. To do this select **Options** in the main menu and then **Track**. Select/Unselect the **Heading up** toggle button (Figure [Option Track](#)).

4.22 Map Mode

The Map can be displayed in two modes: Moving map or non moving map. To do this select **Options** in the main menu and then **Track**. Select/Unselect the **Moving** toggle button (Figure [Option Track](#)).

4.23 Map Sort

The maps are drawn in the order they appear in the map list. Land and water should be drawn first, roads and buildings etc last. To reorganize the map list, select **Options** from the main menu and then **Map** (Figure [Option Map](#)). With the “arrow”-buttons a selected map entry can be moved up or down to a proper place. The following buttons exist:


- Move entry to the top of the list 
- Move entry to the end of the list 
- Move entry up 
- Move entry down 

4.24 Map Visibility

The maps can be switched on or off or displayed only when the range is below a certain limit. To do this select **Option** from the main menu and then **Map** (Figure [Option Map](#)). Select the map in the list. Select the *Visible* field, a dropdown list will appear. From the dropdown list select:

- **Off** for not visible
- **On** for always visible
- **<range value>** for visibility only below or equal the selected range

4.25 Met Display


To display the Met report window select the -button.

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4.26 Met Report Select

The met report for a certain airport can be selected. To do this click a selection from **Metrep** in **Option Track** and then select the airport in the drop down list.

4.27 Overview

Use the - button to switch to a parameter defined overview range and track settings. If you press this button again, you return to the original range and settings active when you first pressed the button. Note that if you select **Option Track** in overview mode the *Overview* settings are displayed.

4.28 Range

You can select the range (horizontal distance from the centre to the edge of the window). For this you click a selection from **Range** in the **Options-Track** window (see [Track window](#)). You can select the range from a predefined list of values. The values are: 1,5,10,20,30,40,50,100,150,200 NM.

4.29 System of Measurements

You can select the system of measurement. The available systems of measurement are:

- ICAO standard system—stated in nautical mile, feet and knots.
- SI or the Metric system—stated in kilometres, meters and kilometres/hour.

To change the system of measurement select **Options** from the main menu and then **Track** (see [Track window](#)). Select the **Metric** toggle button.

4.30 Track Filter

You can remove the display of tracks that are flying on other altitudes than the own aircraft. To do this select **Options** from the main menu and then **Track** (see [Track window](#)). Select the flight level difference from own aircraft from the **Filter** dropdown box. You can select any of the following (in 100rds of feet): Off, 5, 10, 20, 30. E.g. when 5 is selected, only aircraft that are flying +/- 500 feet or less from the altitude of the own aircraft are displayed.

4.31 Track History

You can select the amount of historical positions for track display. To do this select **Options** from the main menu and then **Track** (see [Track window](#)). Select the number of history from the **History** dropdown list.

The following selections can be made: 0, 1, 5, 10, 25, 50 or 100.

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4.32 Track Size

You can select the size of the track symbol. To do this select **Options** from the main menu and then **Track** (see [Track window](#)). Select the size from the **Plot size** dropdown list. The choices are: *Small*, *medium* or *large*. This command also selects the font for the label of the track. (see Option Font). The selection *small* corresponds to the *Label size 1*, *medium* to the *Label size 2* etc.

4.33 Track Prediction line

You can select to display a one minute prediction line for all tracks. To do this select **Options** from the main menu and then **Track** (see [Track window](#)). Select the **Predict** toggle button.

4.34 Zoom In

You use the “+” button to zoom in on the geographical window. Each time you press the button, the window zooms in 25%. The current horizontal distance from centre to window edge (range) are shown on the display.

4.35 Zoom Out

You use the “-“ button to zoom out in the geographical window. Each time you press the button, the window zooms out 25%. The current horizontal distance from centre to window edge (range) are shown on the display.

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5 How To – Guide

5.1 Create and save route

If it is the first time you use the Pocket PC and you want to create a flight plan route. You can do this in two ways: Draw in free hand with the pen or select navigation points from a list.

Assume that you will use the Pen:

Tap and hold the pen in the geographical window. When the menu appears select **Edit fpl**. Pick with the pen in map in the geographical window. If you pick on or close to a navigation point, the navigation point will be selected otherwise the a lat/long point will be used. For each pick with the pen a route-leg will be displayed. You can delete a point in the route by picking on the last point.


When you are finished with your route creation, select **Options** and **FPL** from the main menu (See [FPL route window](#)). Your created route is displayed in the list. Do the final editing, if needed. Finally select the “save”  -button and into the displayed file box enter a name of your route. These set of route points can then be reused in the future.

Note that you can change the colour of the drawn route by changing FPL in the Option Colour Window.

5.2 Reusing a saved route

Assume that you have saved a route and you want to use the same route except that you will pass some other navigation points than the last time you used the route.


Select the **Options** and then **FPL** (See [FPL route window](#)). Select **Open** and into the file box enter the name of the route you want to edit. The route point list is displayed.

When the editing is completed select “save”  -button and enter a new name, otherwise the file will be overwritten. Return to the geographical window. The new route will now be displayed.

5.3 Add own maps

The system uses MapInfo Interchange Format (MIF) for all maps. Most commercial Map-tools do have export possibilities to MIF. Transfer your MIF-map to directory “Your installation directory”\cdti\maps. If the map contains route points to be used for FPL routes you must also add the corresponding MID file to the same directory. Select **Option** from the main menu and then **Map** (Figure [Option Map](#)).

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Select the place in the list where to insert the map entry. Select the “Add” -button. Use the “keyboard” to enter the name (without extension). Select the visibility. The map is drawn in the colour defined in the MIF-file. Note in the Colour-drop down list you can only change the colour for all items in the map.

5.3.1 Data Field

The following type of extra information can be added in the “Data” section for a map:

- Navigation- or route point (N)
- Control zone (C)
- Temporary segregated areas (T)
- Runway incursion check handling (R)

To add an information text that exist in the MID-file add the order after the Data type.

Below is an example of one line in a MID-file

```
"ESAA", "DNPT", "DETNI", "1998", "0001", "1", "2003-06-30
13:01", "ORGWGS", "ORGWGS", "FIX:DETNI", "0,0,0", "0kHz", "2003-06-
12", "F", "0", "", "Tot_030630.SOF 2003-06-
30MARAND", "ESSENTIAL", "A8AD3242", "1E556196", "6F0C1BB8", "4C4CD361", 5108
```

If you add “N,3” in the Data section

N = indicates that the route point name shall be used in the available route entries. The “3” indicates that the 3:rd entry in the MID shall be used as route point name and to be displayed in the map. In this example “DETNI” will be displayed in the map.

If more entries from the MID-file shall be displayed in the map more entries in the list can be added. E.g.

N,1,3

”ESSA

DETNI” will be displayed in the map.

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6 Parameters

The CDTI software contains a preset parameter file param.txt. The file is located at “Your Installation memory”\cdti and is an ASCII file. The file contains two types of parameters:

- MMI parameters
- Technical parameters

6.1 MMI Parameters

The MMI settings such as the range, plot size, maps, fonts and colours are stored in the parameter file.

For normal use the user do not need to change anything manually in this file. For the MMI settings the user must use Menu-Options in the CDTI.

6.2 Technical Parameter

The technical parameters handles timeouts, communication settings and such
The values below are the default values at installation. The parameters can be changed with the notepad editor. But before any editing you should create a backup of your current parameters.

6.2.1 Timeout Parameters

In the section <TIMEOUT> in the parameter file there are parameters for setting different timeouts:

term=30

If a track has not been updated for a <*term*> number of seconds it is terminated

miss=10

If a track has not been updated for a <*miss*> number of seconds it is displayed in the colour “*Terminating tracks*”

nonav=10

If the own position has not been updated for a <*nonav*> number of seconds the text “No Nav” is displayed

6.2.2 Communication Parameters

In the section <COMM> there are parameters for setting different communication parameters:

port=COM1

Take VIP input from the <*port*> e.g COM1

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baud=115200

Use input bit rate at *<baud>*

log=*<filename>*

Log the data received to the Pocket PC for the serial interface to VIP. The data is converted to ASCII and stored in the *<filename>-<time-and-date>.txt*.

6.2.3 Met report parameter

In the section *<TRACK>* there is a parameter for setting airports for which a met report shall be possible to display.

metairp=*<N>*,*<airport1>*,....*<airportN>*

The *<airport>* name is in ICAO standard. N is number of airports in the list.

6.2.4 Recording and Playback of Positions

In the section *<FILE>* there are parameters for recording and playback of own and other navigation data.

record=*<filename>*

All incoming navigation data is saved to the given file. The contents of the file is in ASCII and the data is saved composing the name = *<filename>-<time and date>.txt*

playback=*<filename>*[,*<start time>*,*<stop time>*]

If the given filename exist all navigation data is taken from the file. No realtime data is displayed. To indicate playback a "PB" is displayed after own speed and direction in the MMI.

When the playback reaches end of file or the stop offset the playback continues from the start.

Example:

playback=*cdti5log-040806-1022.txt,560,1000*

The navigation data playback starts at an offset of 560 seconds and stops at an offset of 1000 seconds. The system actually does a fast forward winding to the start offset. All entries in the file until start the start offset is evaluated and set, however from "start" the replay continues at normal speed.

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6.2.5 Runway Incursion

In the section <RIMS> there are parameters for setting volume for supervision of runways.

check = <Name of the runway >, <max height in ft>, <4 lat/long points>

Example:

check=ESCF 01/19,1000,15.516332 58.386679,15.515657 58.386797,15.527642
58.405653,15.528314 58.405537

Note that the runway name must be the same as the name in the MID-file for the map containing the definition of the runway. Note also that a “D” in the *Data* field (see [Option Map](#)) must exist.