PC Program for LX Instruments

Users Manual

1 Introduction

The program has been developed to ensure data transfer between LX instruments and PC, to edit turn point and task data base, to edit flight information, to edit and transfer settings to the instrument, to check integrity of IGC flights (IGC, LXN, FIL, SDI files) and to manipulate with airport data base.

This manual is written for the pilots who doesn't have a lot of PC experience, to help them using Lxe, evaluating and preparing their flights.

Lxe is Widows based program running under: Windows 95/98/ME/2000/XP

Recommended system configuration:

Pentium 166MMX or better PC running Windows 95/98/ Me/2000/XP
32MB RAM
Display 1024 x 768 resolution, 16 bit color
20MB free hard disk space (without map)
Having lover computer power like described, could produce evident problems using the program.

1.1 Updates

The updates are currently published on www.lxnavigation.si and are free.

1.2 Airport and airspace data base

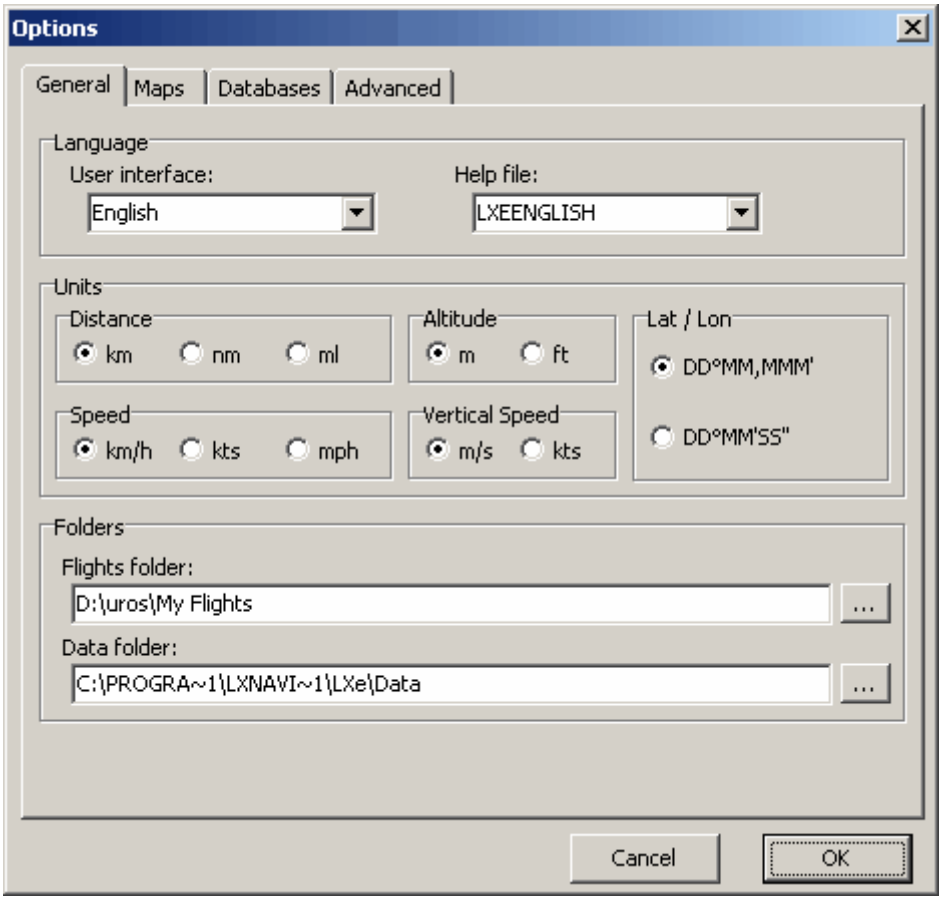
The airport data base is a Jeppesen data base of European airfields and airspace, this data base couldn't be edit by user. The actual data base is available on www.lxnavigatoin.si and is not free. The data transfer to the instrument is possible after input of correct code, the code bases on instrument type, data base version and serial number of the instrument. The codes are to be ordered by Filser Electronic in Germany (00 49 8246 96990 or zeno@filser.de). Some data bases are free and using of this data doesn't require any code. Each data base is marked visually if free or not.

Following data is necessary to get the actual code:

Type of the instrument:
Ser. number of the instrument:
Requested database version:

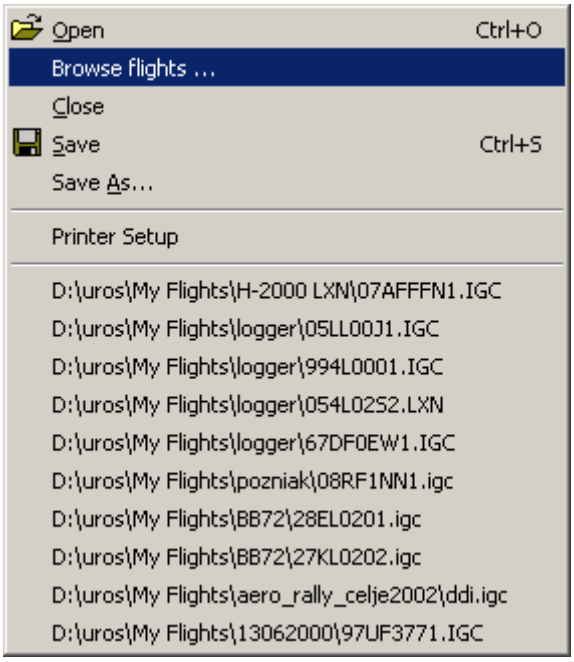
2 Getting started

The program is started after a double click on Lxe icon from the desktop, if there is no icon to be found run the program from Programs.
The program will need a couple of seconds to boot itself. After a successful booting following screen will appear (General).



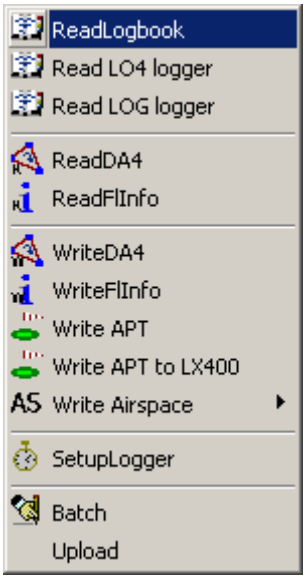
2.1 File

File supports standard widows functions like Open, Close, Save… Additional function called Browse Flights, will allow the pilot to browse through the all flights stored on the computer or network neighborhood.



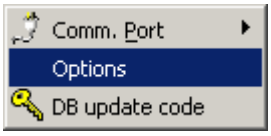
2.2 Transfer

Transfer is active after connection PC- LX instrument has been established, all functions of this menu are strictly connected with data transfer. All necessary activities to connect should be done on instrument side.



2.3 Setup

Setup settings are extremely important and should be provided before the program will be used for data transfer PC ⇔ LX instrument. There are three items to be set:

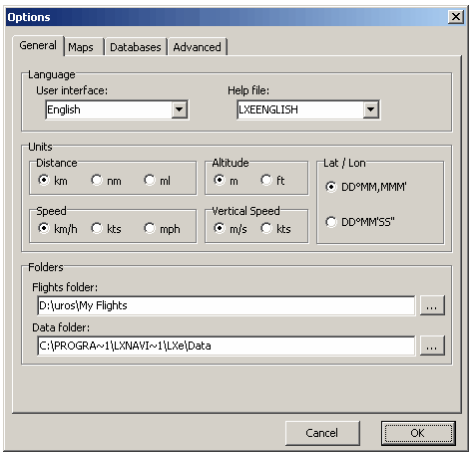


COM PORT, defines com port of the PC which will be used for data transfer, using laptops it is usually COM1. Using laptop with USB port only, an **adapter** USB – RS 232 should be used. Simply mark com port number with mouse click.

CODE input will allow to transfer (not free) the data base from the PC into the LX instrument. The code you will find on the label of the Lxe CD or will be given by Filser in fact of an update.

OPTIONS will define a wide range of settings connected with data base, maps and locations of individual files.

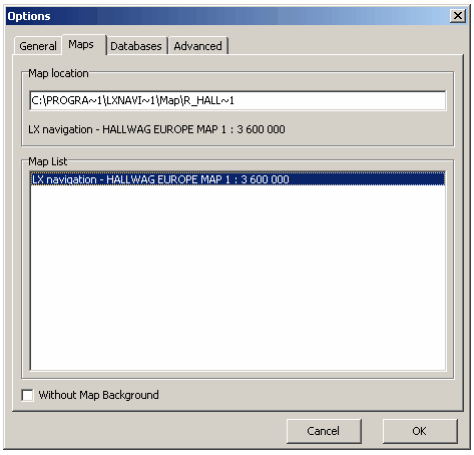
After click on **general** some important information about file destinations (folders), languages and units will follow.



The **Flights folder** shows you where your **flights will be stored after downloading**. A new destination could be chosen after click on **…** and using of standard Windows browsing methods.

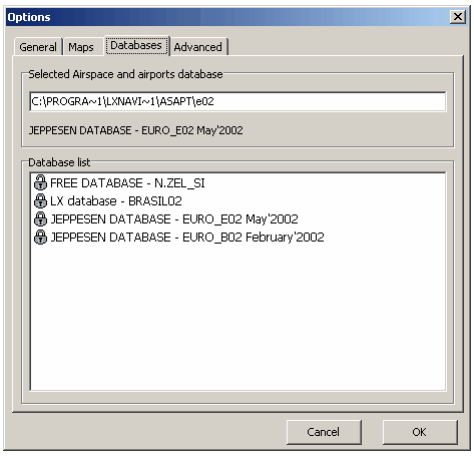
Data Folder shows the folder name and destination of TP&TSK files (da4). Downloaded files from LX instruments will be stored in this folder.

After click on **map** all available maps will be shown in the **map list**, after **double click on** the map from the map list, the selected map will appear in map **location folder** like active map, that means will be used by flight evaluation like background. Lxe supports only map of Europe in present time.

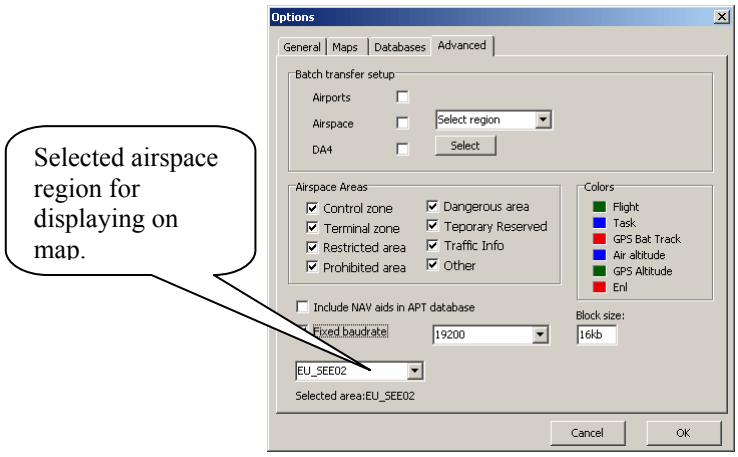


IMPORTANT!
The users out of Europe should mark **"without map background"** to be able to observe their routes evaluating their flights).

After click on **Database** the same procedure like described (selection of maps) will activate the individual database (airports and airspace).
The database means airports and the airspace together. Individual database is named like EURO for Europe, one letter (month of issue) and year, like two numbers (H01, August 2001). On www.lxnavigation.si are available several world wide database files, some of them are free and some of them needs code to be uploaded.
After downloading and installing of an update, is obligatory to provide the **activation procedure** (double click on actual database) before loading to the instrument. Free database is marked like free and not free like locked.



Menu **Advanced** will prepare some settings in advance, but is not important for daily use.



Airspace areas selection will define airspace zones which will be displayed over map during flight evaluation.
Include NAV in APT database will transfer NAV aids (NDB's and VOR's) together with airports.
It is recommended to use **FIX Baudreate**, special having problems to connect PC and the instrument.

2.4 Tools

The pilots who want to use the polar parameters calculated by themselves and to input them like USER POLAR into the LX gliding computer, are able to use this menu.

2.5 Windows

It is absolutely not important menu, it will help you only to organize the PC screen windows under your personal wishes.

2.6 Help

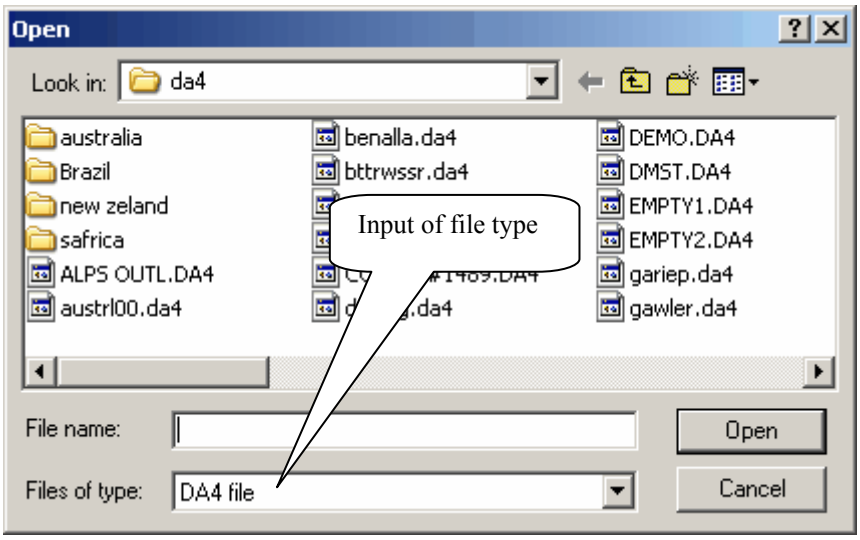
This menu will give you some on line help and consist of four items.

3 Manipulation without LX instrument connected

As mentioned before, some functions are active exclusively having connected LX instrument to the PC (CONNECT status on the instrument. How to establish connection see following chapters. All the icons which are not highlighted will be active after connect status will appear.

3.1 Turn point and Task files in da.4 format

All TP&TSK files are in well known **.da4 format.** Practically the whole family of LX instruments support this format, some older LX 4000 and LX 400 don't use .da4. See table in help to find out the exceptions. After installation there are a few .da4 automatically copied into DATA folder of Lxe.

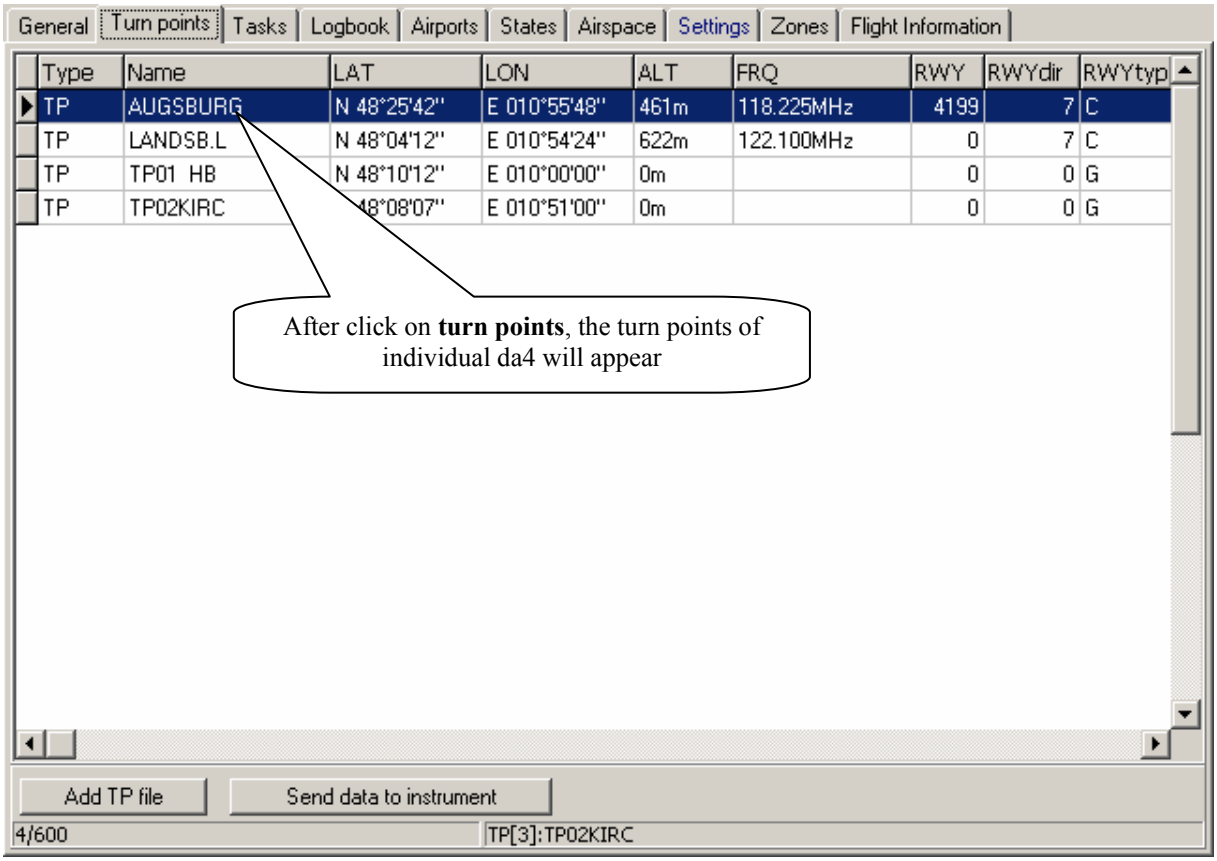


To open a .da4 use standard Windows **open command**  **.**

After input **Type of file** (da4) and selection of the folder where the file has been stored an open command should follow (click on OPEN). The da4 file could be stored where ever in your computer or in another computer connected to LAN. Use windows browse commands to find it.
Following two types of files could be used like not .da4:

- Cambridge file format .dat
- Comma separated .txt

Those files will be internal converted into .da4 and transfer to LX instruments will be possible.

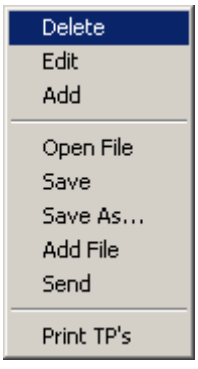


After successfully opening of believable da4 file, following Lxe features are present:

- **Edit** of turn points
- **Edit** of tasks

3.2 Edit of turn points

After a da4 file has been opened, edit procedure could follow.
Left mouse click will select the point which is to edit. To start edit press right mouse bottom to open edit menu:



- **Delete** will delete selected turn point definitively
- **Edit** will allow to change turn point data
- **Open file** will open a new file
- **Save** will save changes
- **Save as** will save under new name
- **Add file** will allow to make fusion of two da4 files
- **Send** will send data to the instrument if connected
- **Print** will print out the turn points library

HOW to copy an airport into da4 file!

To add an airport from the airport data base click on **Airports** select the right one, press right mouse and click on **Copy to TP.** The selected airport will be copied like turn point into **actual da4.file**.

The turn points of nearly all LX instruments have four attributes as follows:

- normal turn points (not landable)
- outlanding fields (included in Near)
- airfields (included in Near)
- markers (will disappear after power off).

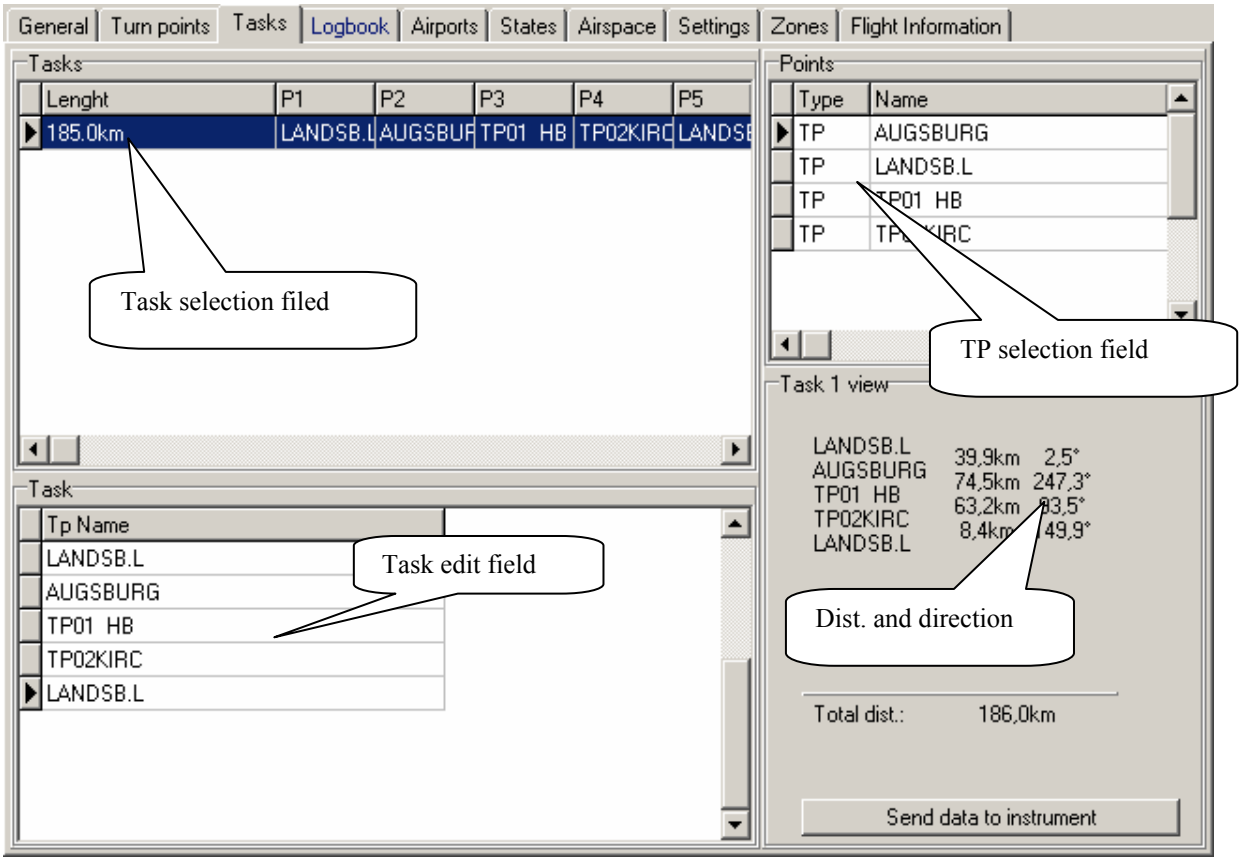
All mentioned attributes are selectable using edit turn point function.

3.3 Creating of new DA4 file

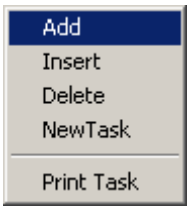
First click on turn points will open an empty table, which is ready to be edited (see Ch 3.2). If window with TP's … is already opened and turn points are in the table, it's necessary to save and close it (File->Close or Ctrl F4). To start with a new file, then press  .

3.4 Edit a task

Like mentioned before, consists one da4 file from turn points and tasks. To edit task data, open the corresponding da4 file and click on **Task.** All tasks included in the da4 will be present.

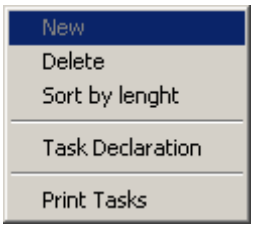


Right mouse click on **Task edit field,** will open an edit menu.



- **Add** (adding of a new TP, like the last one selected from actual TPs)
- **Insert** will insert a new TP one position higher like marked
- **Delete** will remove selected TP from the task
- **New Task** will allow to create a new task of the da4
- **Print Task** will print task data

Right mouse click in **Task selection filed** will open following items:



- **Delete** will delete task completely
- **Sort by** length will sort the tasks under length
- **Task declaration** will open **flight information menu** with selected task like declared task. After input of pilot and glider data will be possible to transfer flight info to the LX instrument directly or save it. The declaration will be accepted automatically **without any additional manipulation** by LX instrument. The da4 format doesn't respect take off and landing in its structure, that means like take off and landing will be offered start point and finish point. Both names (Takeoff and landing) could be changed in the LX instrument manually.
- **Print task** will print out all the tasks of selected da4 file.

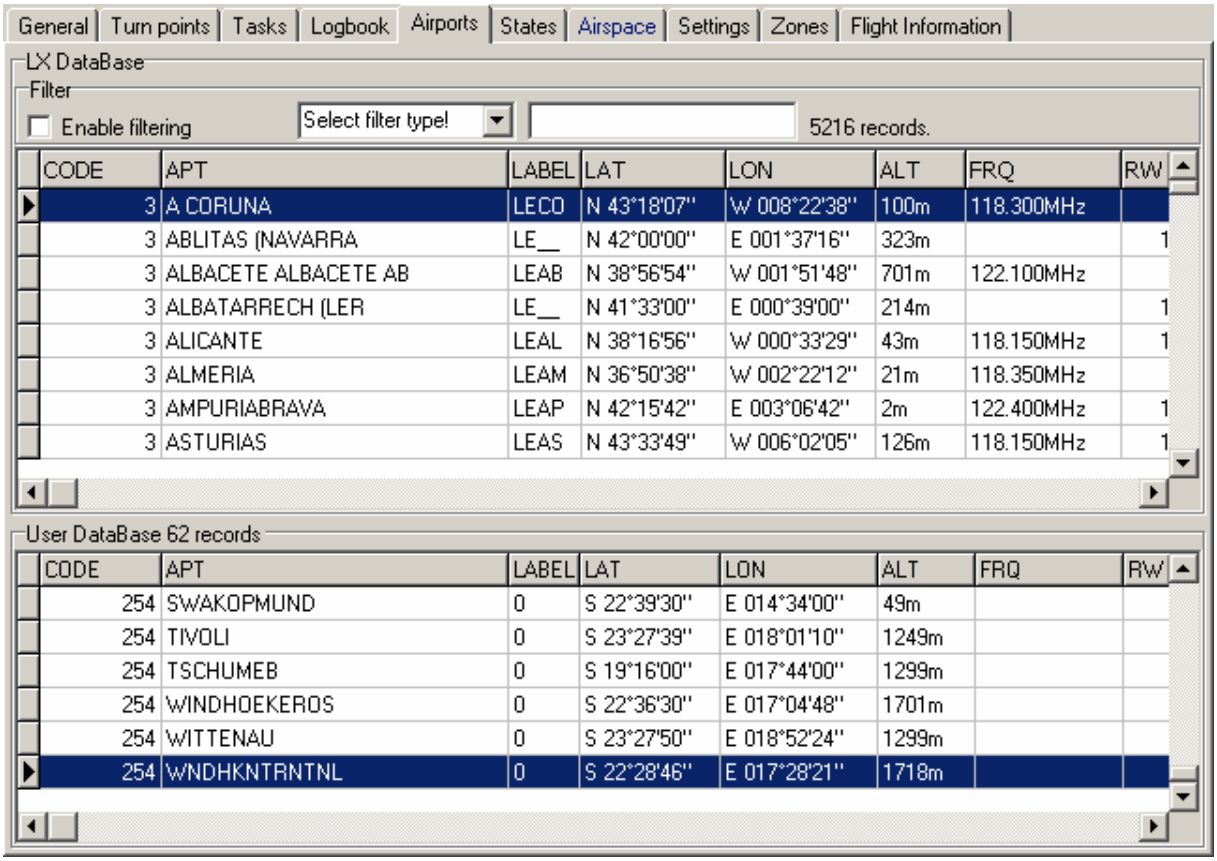
Suggested procedure, inserting a new turn point:

- Select the new turn point, simple click on it in **TP selection field** (an arrow will mark the selection)
- Mark the TP in **Task edit field** where additional turn point should be inserted
- Click right mouse and provide insert

After using of **Send data to instrument** command, the actual da4 file (turn points and tasks) will be sent to the instrument (if connected).

3.5 Airports

This feature allows the pilot to adapt the airport data base to fulfill his personal needs. The airport data base is closed generally and only some limited changes are allowed. The whole data base (airports and nav aids) is based on separation under states, each state has an individual code number for instance 20 for Germany. A special filtering function makes searching of an airport or nav aid very easy. The pilot should define under what criteria he will search for an individual airport or airports of one state (State name, State ID, ICAO or APT name).



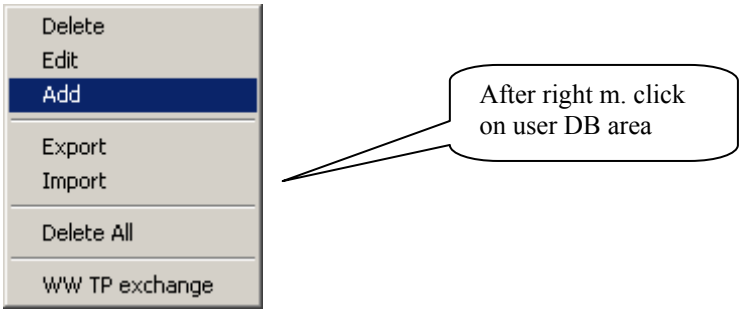
Example!
Searching for German airports using state name.

- Define searching by **state name**
- Enter **Germany**
- Click on **enable filtering**

Searching under APT name or ICAO will select only one airport or nav aid exclusively.

3.5.1 User data base

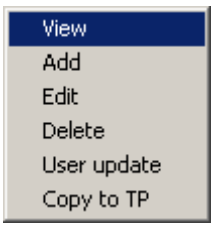
User data base is empty after delivery. The pilot is able to input his individual data base that way. The user data base is in principle a state named USER having ID code 254 and is absolutely open for the pilots .



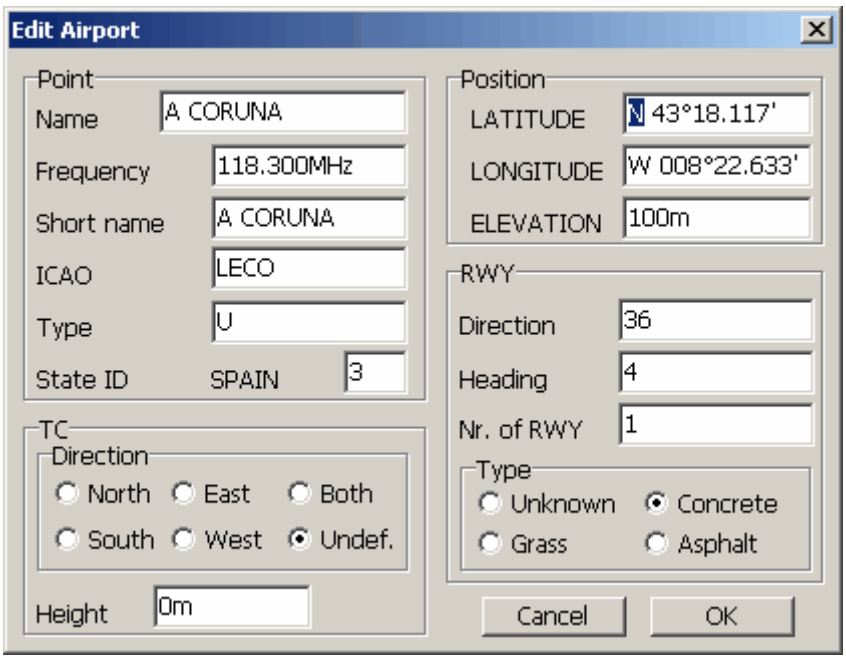
- **Delete** will delete selected airport if any
- **Edit** will allow to change airport data
- **Add** will add a new airport
- **Export** will export user data base
- **Import** will allow to import the user data base
- **Delete all** will delete all user airports
- **WW TP exchange** will establish an internet connection to update the user data base

3.5.2 Editing of airport database (Jeppesen data base)

After right mouse click on selected airfield an edit window will open.



- **View** show the airport data without possibility to change them
- **Add** will add a new airport into the data base
- **Edit** will allow to change airport data



- **Delete** will delete selected airport
- **User update** will copy selected airport from user database into airport database
- **Copy to TP** will copy selected airport into open turn point data base (da4)

3.6 States

Individual states could be disabled under pilot wish (mouse click on state will disable and a new click will enable selected state again). After installation are all states enabled. Having selected to many airports (more than LX instrument capacity) an error message will appear, in that case is obligatory to reduce the database disabling some states. The counter on the bottom of the screen will show how many airports are enabled.

3.7 Airspace

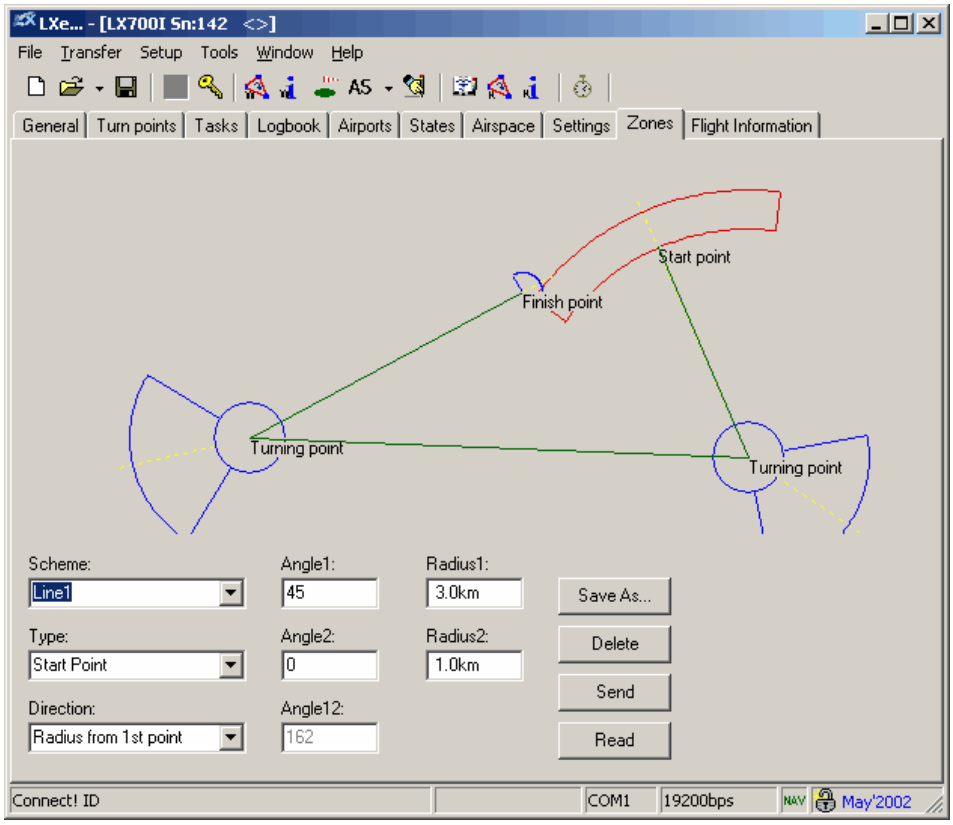
The European airspace is divided into subparts covering individual parts of Europe. After selection of the part (Setup->Options->Advanced), for instance EU C, the airspace of central Europe will be shown over the map of Europe if installed.

3.8 Settings

All necessary settings which are to be done in the LX instruments manually could be prepared using Lxe (Settings) and transferred to the LX instrument via computer. LX 5000 doesn't accept transfer of settings until now.

3.9 Zones

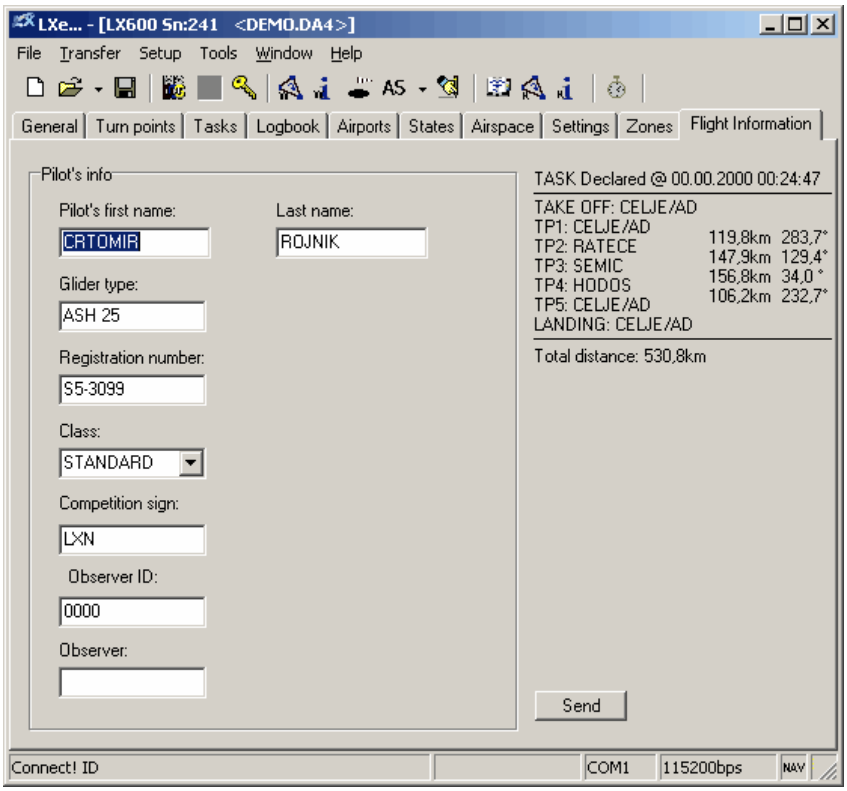
Lxe is able to prepare confirmation zones for individual sectors. Each sector consists of maximal two angles and two radials. The settings are present on the screen, to assure simple control procedures. The individual settings could be saved and used after.



After sector modification, use **send** button to send zones to instrument directly, or **save as** button to store into new scheme.

3.10 Flight information

All necessary inputs about pilot, glider, observer ID, observer name and task declaration could be prepared in this menu. The task declaration procedure has been described in chapter 3.3 (Edit task). Some instruments don't allow (LX 20) change of declaration after input of official observer ID. Observer ID 0000 means no input.



Send button will send flight information into LX instrument directly.

4 Data transfer PC (Lxe) and LX instruments

4.1 How to get connection?

Lxe is all the time sending requests for the connection on the com port selected. Some of LX instruments will connect automatically after received some requests and some manipulation should be done using instruments who don't connect automatically

TYP	AUTO CONN.	PROCEDURE
COLIBRI	Y	
LX 20	N	Main menu, Logger, **Write or Read**
LX 5000,7000, LX 700 DX 50, LX 500	N	Setup, **Transfer**, Enter
LX 4000,400	N	PC,Enter

There are two very significant signals about establishing of connection**, CONNECT** message on LX instrument and opening of **TRANSFER and GENERAL** menus on Lxe. Com speed setting on LX instrument doesn't matter, while Lxe adapts his speed to the LX instrument automatically. Having problems establishing connect set COM SPPED to fix (Setup/advanced), which should be the same like set in the LX instrument.

4.1.1 Trouble shooting

After connect hadn't been established (TIME out is over) there must be a problem on PC, cables, or eventually on LX Instrument.

Problems after first installation

If you are using your laptop first time and you are not able to establish connection, please check if the com port is not occupied. There are some programs, who occupies the com port (programs for camera…) and no other program is able to access the com port. Having no free com port Lxe will search all the time for a free comport, it is typical signal that the port seems to be occupied. If you are not enough experienced using computer, please contact your computer specialist.
To prove that some program is occupying the com port simple run **LXFAI from DOS,** getting connection under DOS, will show you that the com port is occupied from another program.

Check cables if the are not broken and if connected properly.

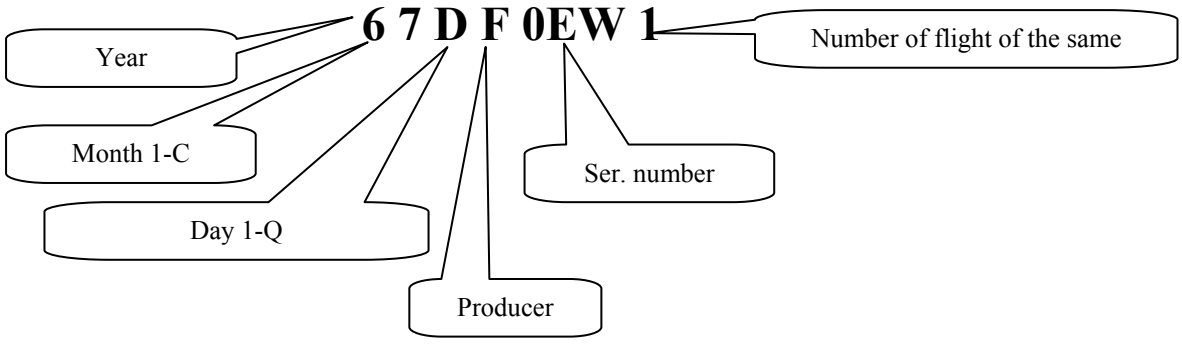
IMPORTANT!

Remove all other devices connected to the data output of the LX instrument before connecting PC. (Winpilot and similar devices)

4.2 Reading of logger files from instruments

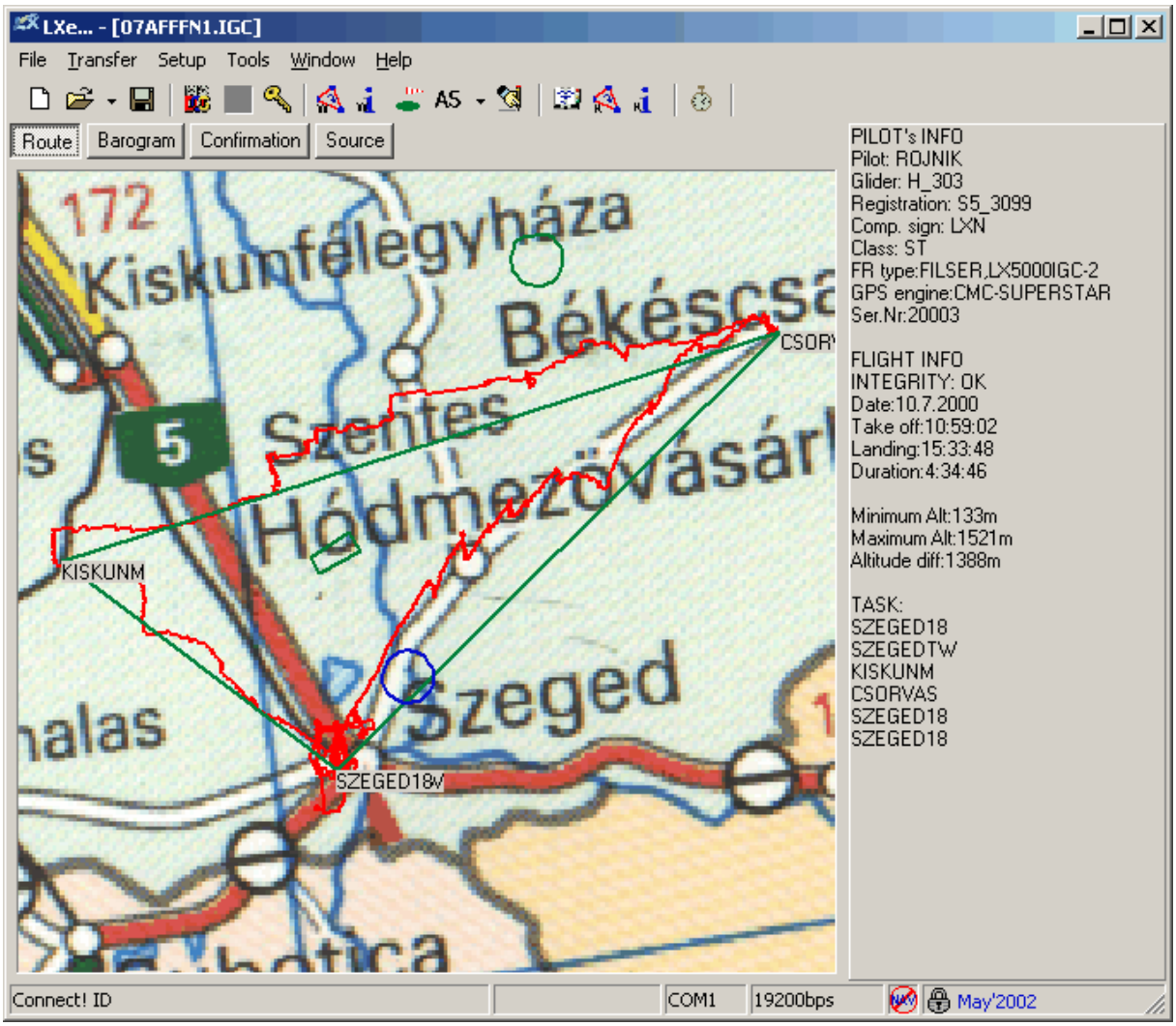
5 Flight evaluation

Lxe is able to evaluate all files having an .IGC extension, doesn't matter on flight recorder producer. To start flight evaluation use simple open command to open an .IGC file (File of Type IGC). The binary files of LX products (LXN, FIL and SDI) could be evaluated too. IGC flight file is named like combination of numbers and letters having an extension IGC.



5.1 Flown route display

After the flight has been successfully opened following screen will appear.



Using of the right mouse button.

- **ZOOM** in
- **ZOOM** out
- **ZOOM** all
- **Print** will be active after setting no map in background only

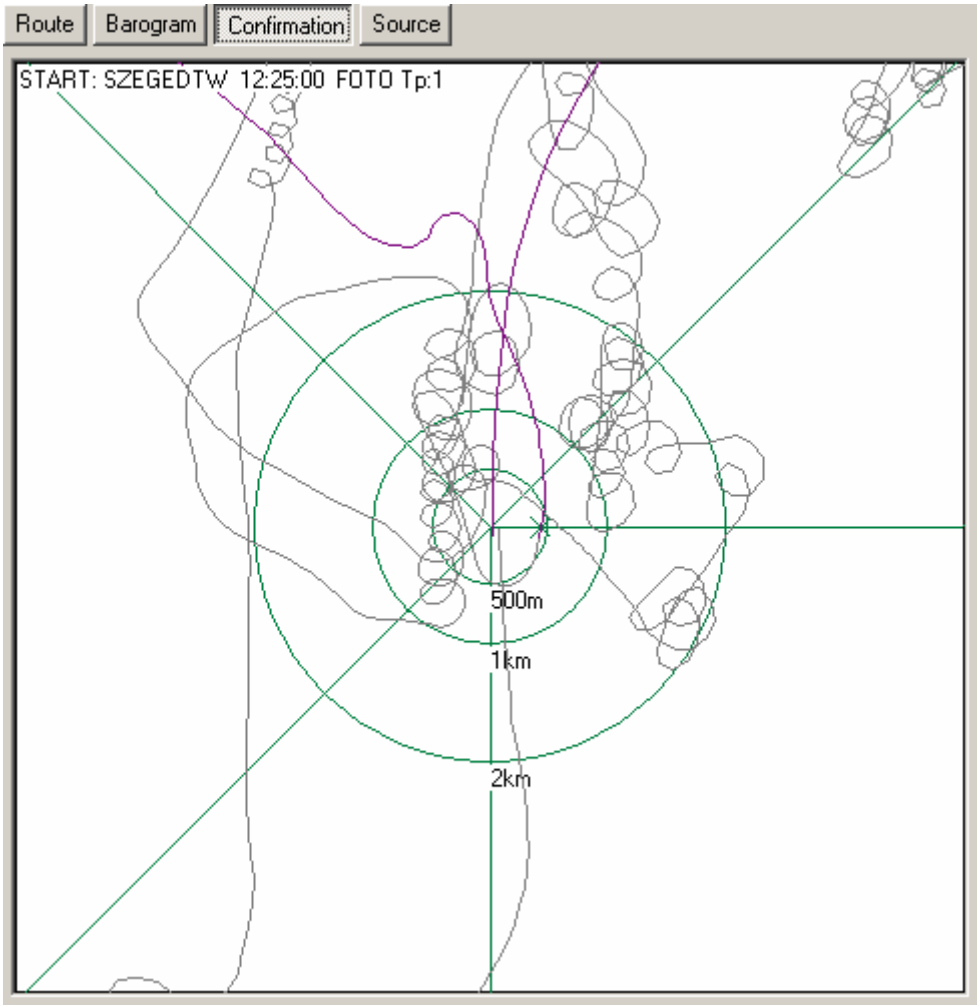
Center the screen use left mouse button.

5.2 Barogram (pressure and GPS)

After click on barogram the **barogram** of the selected flight will be shown. The blue line of the barogram is pressure altitude and the green one is GPS altitude. Right mouse button will activate **print** function and disabling of GPS altitude diagram.

5.3 Confirmations

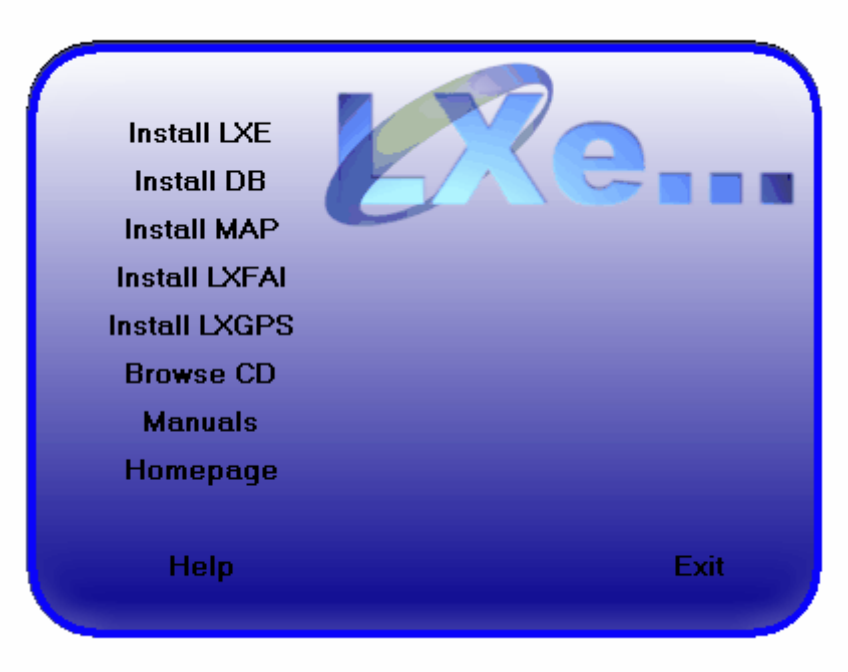
Having downloaded an IGC flight with correct declaration, the turn point confirmation analyses could be provided. The procedure is started after mouse click on **confirmations.**



Using right mouse click is possible to change over to the next or previous point, or to print out the sector. The sectors are not connected with sectors defined in ZONES. For more sophisticated flight analyses use special flight analyses programs (SeeYou…).

6 Program installation

The Lxe CD belongs to each delivered LX instrument and is generally free. To install the program is obligatory to provide standard Windows installation procedure. The updates are available on www.lxnavigation .si. An update requests new installation in any way, simple copy of files will not work. To remove the program standard Windows remove procedures should be respected. Updating means simple installing of a new version without previous removing of the old version. Having inserted Lxe CD into CD drive following installations could be provided:



Obligatory installations:

- Lxe, DB and map

Not obligatory installations:

- LXFAI, LXGPS

By the way, you are able to find practically all manuals for LX instruments on the CD.
After click on INSTALL LXE the procedure will start automatically, simple follow instructions.
To install next programs repeat the procedure simple.