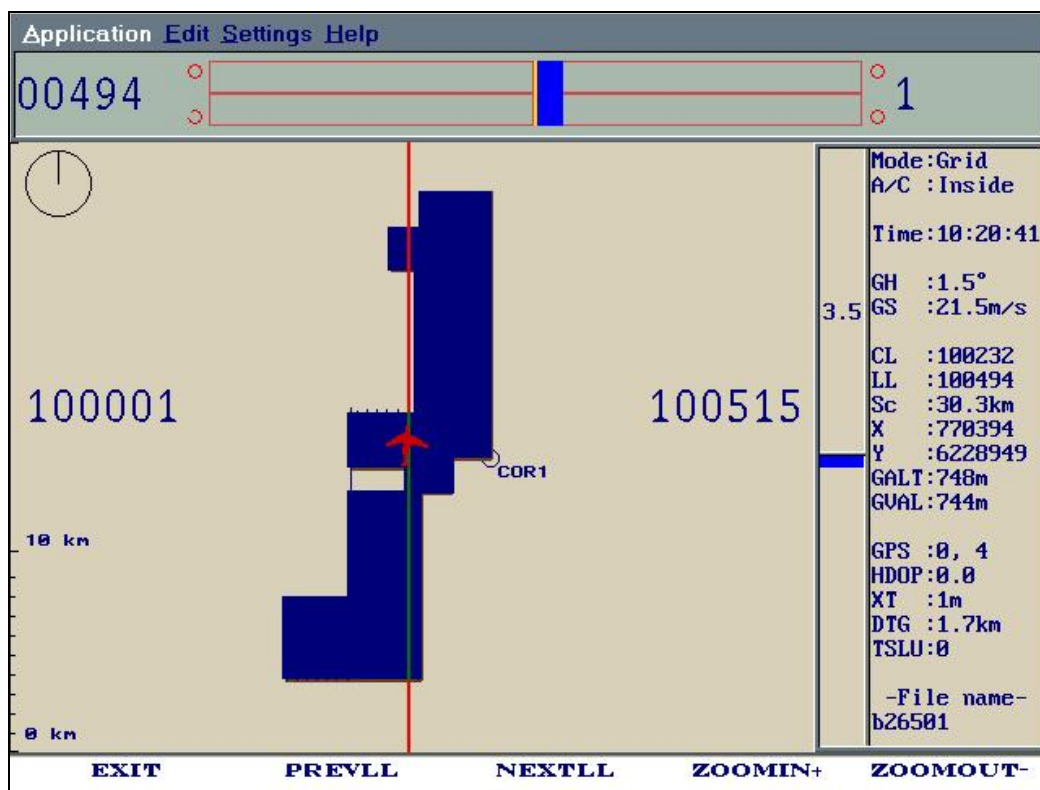


# LiNav Software Releases

## New Features and Changes in Release 1.4.5: (September 2011)

1. Target Line Plot: A target line is the line selected for guidance. It's also called the locked line. If you have a line with 2 or more segments, each segment has a different line number then each segment will be considered a single line in LiNav. A problem happens when you select a segment to fly, the locked line is drawn over all segments and you don't know which segment is selected. This problem is solved in LiNav version 1.4.5. By the target line or segment will be plotted in color defined in Settings → Color. By default, the locked line is plotted in bright red and target line in dark red. If you select a different color, for example green, for target line, you will see a green line over the locked line.

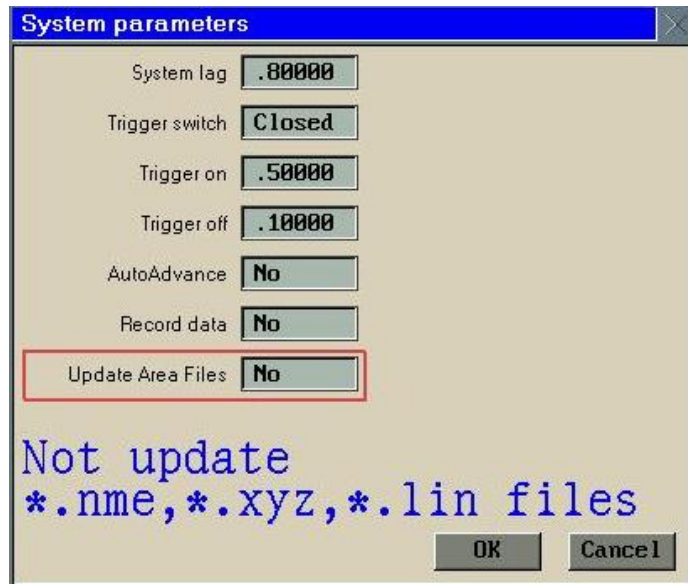


2. Virtual Grid Line: A virtual grid line is a line generated outside the survey area. In previous version, when the locked line is 1 and you push the key <PrevLL>, the locked line will be shifted to line 0 outside the survey area. No more virtual line is generated in version 1.4.5. The locked line is shifted to the lines defined in your \*.xyz file only.
3. GPS Indicator: Some GPS receiver can estimate GPS position when GPS signals are lost. The GPS data output will have the value "6" for Quality Indicator. The estimated data might be good for a few seconds but will deviate from true position when the signal lost time is longer. To maintain accurate data and guidance, you can program LiNav not to use the estimated data during flight. In this case, the estimated data will be considered "Bad GPS". To do this, run Configure GPS. Select **GPS Settings → Use GPS Estimate**. Enter "No" for this setting. The default is "Yes".

## New Features and Changes in Release 1.4.4: (April 2011)

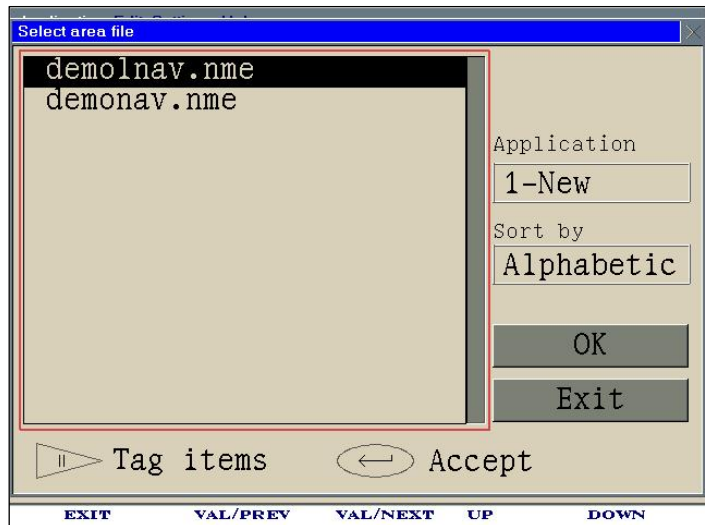
1. Not Update Area Files: Normally after reading the area file and all settings and during flight if there are any changes, LiNav will update the area file with the information or settings it uses for the flight. For example, if the flight lines are changed, the \*.nme and \*.xyz files will be updated.

For any reason, if you don't want LiNav to update your files (\*.nme, \*.xyz, \*.lin) in any case, you can select Settings → System. Select "No" for "Update Area Files". If your selection is "No", all functions related to grid line change (<NewGrid>, <BestHead>, <NextHead>, <ChgHead>) won't be executed.



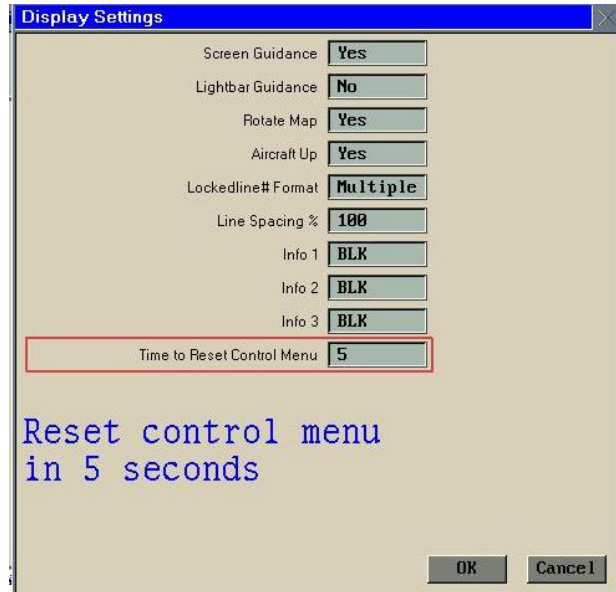
2. Map Display: Survey area boundary is plotted with thicker lines.

3. Control Keys: The LiNav software is more user-friendly with the changes in functions of control keys. When a list of area files is shown as in **Application → Old Area**, key <III> and <IIII> or <Up> and <Down> on the remote switches are used to move the highlight bar up and down respectively. Key <II> or remote <Right> is used to **TAG** an area for multiple area flying. Note that if you fly a single area, you don't have to tag it. Key <I> or remote <Left> is used to scroll up the list. When you reach the top of list, it will scroll to the bottom of list. This helps when you have a long list of files. To select the tagged areas or highlighted area (single area), push the <Enter> key.



This key operation applies to all pages and dialogues that have a list of items.

- Control Menu: The first Control Menu has 4 functions that you would use the most often during flight. The **<Enter>** key is used to change the Control Menu. Guia can reset the Control Menu automatically. If no key is pressed within 5 seconds, Guia will automatically return to the first Control Menu. If this is what you want then go to **Settings → Display**. Move the cursor to “Time to Reset Control Menu”. Enter the time Guia should wait before resetting Control Menu to set #1.



- Serial Number and MAC Address: Serial number and MAC address are used and required to make a recovery key for your LiNav. To get this information, when in the Main Menu, select **Help → About**.
- Data Output: If you program LiNav to output data every second, the time to output will be at decimal zero. For example, 12345.0, 12346.0, 12347.0.
- File Manager: If your cell phone has an SD memory card and this card has a folder called “download”, you can connect it to the LiNav to transfer data files from LiNav to the “download” folder on the SD card. Note that your cell phone must have the feature to work as a USB key to transfer files between a PC and cell phone.

### **New Features and Changes in Release 1.4.3: (December 2010)**

- 10Hz GPS Data Update: LiNav works well with 10Hz GPS data update. The guidance is updated 10 times per second. Note that to avoid data missing, the communication baud rate must be 19200 or 38400. Run **TEST → Comport** to test the GPS data. If the data scrolling on screen is not readable, push key **<llll>** to the baud rate setting. Change the baud rate value to see if data is readable. If you see the strings starting with “GPGGA” or “GPVTG”, the current baud rate should be used. When you find the right baud rate, run **Configure GPS → GPS Settings**, enter the correct baud rate value. Then select **Exit**.

## New Features and Changes in Release 1.4.2: (October 2010)

9. Offset Guidance: If you have to fly a fixed distance from predefined flight lines, you can enter the fixed distance as offset for guidance. For example if the survey sensors are mounted on a wing of airplane, say 3 meters cross distance from GPS antenna, LiNav can provide you the offset guidance 3m from the locked line so that the sensors will be carried along the locked line. The fixed distance for offset is called Guidance Offset in LiNav. To enter the Guidance Offset, select Settings → Guidance → Guidance Offset. If the offset is on the right side of locked line (i.e. sensors on the left wing), enter a positive value. If the offset is on the left of locked line (i.e. sensors on the right wing), enter a negative value.

## New Features and Changes in Release 1.4.1: (September 2010)

10. Background Map Display: If you have a map file in shapefile format, you can select to show it on LiNav screen for reference. To do this, select Navigate → Application → Load Map. Then select a map \*.shp file. Note that the shp files must be on the hard drive of LiNav before you can select it for map display. You can use the File Manager to copy your shp files from a USB key to LiNav. Your selection for map will be remembered for next flight.
11. Map Display On/Off: If you selected a map file in “Load Map”, LiNav will show the map as background. To turn off the background map display, press <Enter> until you see the key “**DispMap**”. Push this key to turn off or on map display. Note that you have to add this key to one of the Control Menus for Old Area. Use Settings → Keys to add this key to a Control Menu.
12. Color Selection for Drape: If you fly with altitude guidance, you can select colors for different levels of altitude described in the drape file \*.grd. To do this,
  - Select Navigate → Application → Open Alt Grid.
  - Select the desired \*.grd file.
  - Check mark “Choose Grid File”.
  - Select “Customize” for Color parameter.
  - Move cursor to the button “Set Color”.
  - In the Altitude Color editor, select the desired color in the Color column for each altitude in the Altitude column.
13. Obstacle/Pickup Point Warning: When aircraft approaching an obstacle or pickup point within warning range, LiNav will show warning on main display and lightbar. The warning is the flashing of all lights on lightbar and flashing of guidance bar on main display. To define the warning range, select Settings → Guidance → PUP Alert. Enter the value in seconds that you want LiNav to show warning before aircraft reaching the pickup point.

## **New Features and Changes in Release 1.4.0: (July 2010)**

14. Altitude Profile Zoom In/Out: The big altitude profile displayed in the bottom half of screen can be zoomed in or out by using the function "AZOOMIN" or "AZOOMOUT". Make sure you have these functions in the Control Menus of Old Area.
15. Altitude Profile Display: When the altitude profile is shown, the red cross hair showing the position of aircraft and its altitude relative to the desired altitude will always start from left and move to the right as the aircraft flying along the locked line. This works for both directions when the aircraft flies up and down the flight lines. Note that in previous version, the red cross hair moves from left to right when a/c flying in the same direction as the locked line; and moves from right to left when a/c flying in the opposite direction.
16. Ground Speed in Knots: This can be shown on lightbar or pilot indicator as an option for you to select in Settings → Guidance.
17. Altitude Indicator: For pilot's safety, the altitude guidance (vertical bar) can be shown on a pilot indicator or NavBar. This is called Altitude Indicator which can be mounted vertically beside the regular PDI or wherever convenient to pilot's view. To output altitude guidance to the Altitude Indicator, go to Settings → Data Input / Altitude Indicator. Select "Comport" → "3", "Data Input" → "No", "Altitude Indicator" → "Pilot Indicator" or "Nav Bar" depending on the device you use for Altitude Indicator. Note that the baud rate is automatically changed to 38400. Do not try to change this baud rate.
18. File Manager: The Control Menus displayed at the bottom of screen are changed for more convenience.

# Software Update Procedure

## Important notes:

- The software update will load the new settings to your LiNav system. Therefore before updating software, please record the current settings for use after update. You can use the function Navigate → Settings → Save Settings to save your current settings to a file.
- The USB key that you use as an update disk for the LiNav system must be formatted with FAT32 so that it can hold long filenames.
- If you download the update from AGNAV website, download the software update to the hard drive of your computer first. Do not copy it to the USB key used for update.
- When you are ready, you can do the following:

### 1) Make Update Disk:

- a) Make sure the USB key is empty.
- b) Make sure you have the right update file for your LiNav system. Copy the **p151upd\_g.tgz** file to the USB key. If you use the update files on LiNav CD, copy both files: **update** (no extension) and **p151upd\_g.tgz** to the USB key. Note that all filenames must be in lower case.
- c) Eject the USB key and unplug it from your computer.

### 2) Update Software in LiNav System:

- a) Once the update files are on the USB stick, turn the LiNav on.
- b) Select "**Help**" from the System menu: Press key <0>, <IIII> to highlight "**Help**", then <Enter> to select it.
- c) Select "**Update**" from the Help menu by using key <IIII> and press <Enter>.
- d) Plug the USB stick to LiNav USB port, **wait for 10 seconds** then press <Enter>.
- e) If everything is OK, the message "**update successful**" will be displayed on screen.
- f) Press <Enter> to close the message. When screen is blank, unplug the USB key. System will reboot after a few seconds.

- g) After rebooting, run "**Navigate**".
- h) Check the version of the program: Select "**Help**" → "**About**".
- i) If you got the message "**update failed**" at step e), unplug the USB stick from LiNav and repeat the procedure from step 1d. Make sure you get all the update files described in 1b.

Normally the software update will load the new settings and overwrite the current settings in your LiNav system. Before flying with the new software, please check all settings in Navigate → Settings.

If you saved your settings before updating software, you can load your settings back by selecting Navigate → Settings → Load Settings. Then exit all the way to the Main Menu and run "Navigate" again. Check all settings to make sure you have correct settings before flight.

For further help or information, please contact AG-NAV staff at:

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