

Ski /Snowboard Tracker

This application tracks all relevant information of your skiing or snowboarding session. It runs on all Garmin devices.

More information about my other developments and their documentation can be found at: <https://www.007software.eu/apps-pagina/>

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1 Free vs. Pro Versions

To enable you to try out the functionality of the application, there is a free trial mode. The free version is initially fully functional and shows all features and capabilities of the full version.

The free version is however capped to six sessions; it will not save any more sessions after that and will also no longer show all information screens.

You will understand that it took many hours to develop this application. Also, it takes time to provide the ongoing support for it to work on as many Garmin devices as possible. For the price of a beer for me or a glass of wine for my wife, you can purchase the Pro version and enjoy all features without limitation.

Steps to purchase and activate your Pro version:

1. Create an account at www.007software.eu (recommended; not mandatory). Please use a valid e-mail address.
2. Once approved, you can buy the Pro version via the webshop.
3. In an e-mail, you will be sent a personal license key.
4. Enter this key in the settings of the app (see [License Key](#)) either via Garmin Express on your PC, or via Garmin Connect on your phone. See section [Managing Configuration Settings](#) for step-by-step instructions of how to do this.

2 Installation

Install the application from the ConnectIQ website (<https://apps.garmin.com>) or the ConnectIQ app on your mobile phone.

The installation process is the same for the free and the pro version – it is essentially the same application.

3 Usage

3.1 Where to find the application?






After installation, the application introduces a new activity in the list of activities you can start. So, next to Running or Biking, you will find that a new activity “Ski” is now available (with the Ski Tracker logo in front of it) when you attempt to start a new activity on your device.



Select this activity type to launch the Ski Tracker application.

3.2 Start screen



The start screen's purpose is to show/assert various "connectivity"/"environment" related information. (Version number is an example)

Symbol	Meaning
	The heart symbol shows that a heartbeat can be obtained from your watch directly if it has this capability, or from a compatible and connected heartbeat sensor (e.g. on a chest strap).
	The Bluetooth symbol is for checking that your phone is actively connected to your watch.
	<p>The application starts to acquire a GPS signal automatically. Vertical bars at the center of the screen will show the GPS signal strength (green if good, amber if poor).</p> <p>Wait for the signal strength indication to turn green. Once the GPS signal is strong enough, press the Start(enter) button to start recording.</p> <p>If you hit Start before the GPS signal strength is good (for example when you are still indoors), the watch will still try to acquire the GPS signal and start recording automatically once the signal strength is acceptable.</p>
Weather info	<p>If you checked the checkbox for fetching the weather data automatically in the settings of Garmin Connect for this app, weather data such as wind, precipitation and altitude is fetched and shown here.</p> <p>Notes:</p> <ul style="list-style-type: none"> for this functionality to work, your watch should be paired and Bluetooth-connected with your phone, and your phone needs to be connected to the internet. Press the back-button to refresh values to the latest update of the weather data.
	If you have a Garmin tempe™ wireless temperature sensor attached, then the temperature from this Tempe device will be shown. Also note that with a Tempe, it may take a minute or more before the temperature is shown.
	<p>The device's remaining battery level is visible as a ring at the edge of the screen on round watches and at the bottom on square watches.</p> <p>It turns from green to amber to red as the battery gets depleted.</p> <p>Battery consumption is very modest, expect around 10% of battery to be consumed per hour of recording (as evidenced on a new Garmin Forerunner 245), so you can enjoy a full day of skiing on a full battery.</p>

	<p>The red arrow near the Start button indicates the application is not yet ready to start recording. Wait for the GPS signal to lock on, so that the arrow will turn green.</p> <p>Important: when the application is showing the start screen, it is not yet actively recording anything. Once the GPS signal is strong enough, press the Start(enter) button to start recording.</p>
	<p>The green arrow near the Start button indicates that the application is ready to start recording a session.</p> <p>If you don't press the Start(enter) button to record an activity, the Start screen and the application will automatically close after 2 minutes to conserve battery life.</p>

3.3 Session Recording Screens

After pressing the Start button a second time from within the Start Screen, a session starts being recorded. During session recording, a lot of different metrics are being gathered, enough to fill three consecutive “data” screens (and then some). Their default function is explained in the next sections, but first let's review some general information.

- ➔ To return to the Start Screen from inside a recording session, press the back-button in any of the three data field screens.
- ➔ To scroll through the screens:
 - On touchscreens, tap at the top/bottom of the screen or swipe left/right.
 - On non-touchscreens: press the up/down buttons of your watch.
You can return to the Start Screen by press-and-hold the down key and by tap-and hold on touchscreen devices.
- ➔ The application discerns between inactivity, skiing down and taking lifts up all by itself! You don't have to do anything anymore until the end of the session.
 - When you don't move, the data screens' lines will show red, this informs you that the app is in a paused state. When you move again, recording will automatically resume. This behavior can be overridden via the “auto pause” setting of the app.
 - When you go downhill, the lines turn green; a descent is being recorded.
 - When you are in a lift, the lines will be grey; indicating uphill motion has been detected.
- ➔ The data is laid out onto three consecutive screens with a default lay-out that will work fine for most users. However, every data metric (referred to as a “field”) can be rearranged onto any position of your liking in screens 1 – 3. This can be done in the settings as explained in paragraph [Overview of configuration settings](#).

- **Note:** due to constraints on memory, rearranging fields is not possible on the following watch series:
 - Garmin Vivoactive
 - Garmin epix™
 - Garmin fēnix 3 series
 - Garmin ForeRunner 920XT.

3.3.1 First data screen

The first screen shows by default (in order of top to bottom, left to right):

- Heart zone indicator
- Current Time
- Distance covered
- Current speed
- Speed ▲: Maximum speed recorded so far
- Descent: meters of descent recorded
- Heading: your current (NESW) direction



3.3.2 Second data screen

The second screen shows by default:

- Heart zone indicator
- Current Time
- Total Ascent in meter
- Distance ▲: lift distance covered
- Distance ▼: ski distance covered
- ⌚▲: Time spent going uphill
- ⌚▼: Time spent going downhill
- Current Altitude
- Heading



3.3.3 Third data screen

The third screen shows by default:

- The heart zone indicator
- Current Time
- ~ Speed: your average speed over the session
- # laps▲: Number of laps up
- # laps▼: Number of laps down
- ▲▲: Altitude plotted over time
- ▲▲▲: The maximum altitude in this session
- Heading



3.4 Fourth screen: Take Me Home / MapView

Garmin MapView is a digital cartography service included on select Garmin devices. If your device supports it, the application will show the “Map View” screen as the next screen, showing you a map of your surroundings.

On other devices, the “take me home” screen is shown instead.



If you do not see either of these two screens in the free version on your device, consider upgrading to the pro version. See [Free vs. Pro Versions](#).

3.4.1 Take Me Home screen

The purpose of this screen is to give you some directional guidance, in order to get back to the session's starting point. The "take me home screen" is however not a replacement for a "proper" navigation system. I tried it several times and it will indeed get you close to the starting point. Usage is at your own risk.



→ *Where am I and where do I need to go?*

•	The red dot is where you are, relative to the starting point.
•	The green dot is at the center of the screen and represents the starting point to which you are trying to get back.

→ *Which direction to go?*

•	The red dot is where you are, relative to the starting point.
N	Below the rectangle is the <u>target</u> direction in which you need to go to get back to the starting point of the recording.
ESE	Above the rectangle is the <u>current</u> direction in which you are heading. This will turn green if you are heading towards your starting point, otherwise it turns red.
↖	Inside the rectangle, you will find an arrow at the top-right hand. This arrow points in the direction you will want to turn to get back to the starting point.

→ *How far is it still?*

0.62	Left of the rectangle, there is a number which shows you how far you are away from your starting point (bird's eye view).
mile	On the right of the rectangle is the unit of the number to its left: miles or km.
🎯	The six concentric rings in the middle represent a relative distance graph.
3	<p>The number in the top-left hand of the rectangle indicates which distance the outermost circle represents from the starting point.</p> <ul style="list-style-type: none"> • In the example, the outer ring is 3 miles around the starting point, located at the center of the screen. • Each ring inside of it is half a mile closer to the starting point. • If your graph is set in km, then this outer ring is 3 km and each inner ring in 500m increments, respectively. • If you are farther out than 3 miles (or 3 km), the distance graph will be rescaled to represent 6 mile (or km). The inner rings are now 1.5 mi/km.

3.4.2 Map View screen

The Map View screen has 2 modes: *preview* mode and *browse* mode.

In *preview* mode, you can see where you are now; and if you created a route or itinerary, it will be visible when you are near the starting point.

In *browse* mode, you can zoom/pan to navigate around and get acquainted to the surroundings.

In contrast to the Take Me Home screen, Map View cannot provide guidance back to the starting point.








3.4.2.1 On Button devices


From the Preview screen, long-press the Up-button to set a waypoint. (The long-press UP also works from within either of the three data screens discussed earlier.)

- To enter the Browse mode, press the select/start button once. You will feel a vibration. The screen changes and you will see “+” and “-” symbols near the Up and Down button. The up and down buttons now zoom the map in or out.
- Pressing the select/start button once more, the symbols change to “Up” and “Down” arrows. The up and down buttons now pan the map up or down.
- Pressing the select/start button again, the symbols change to “Left” and “Right” arrows. The up and down buttons now pan the map left or right.
- Press the “Back” button to leave the Browse mode and return to the Preview mode.
- Press the Back button again to return to the Data screens.

3.4.2.2 On Garmin Edge devices without a touch screen

- Use the  button to set a waypoint when you are in the data field screens.
- Use the  button instead when you are in (map) Preview mode.
- Toggle Browse mode via the  button. When you are in the Browse mode, the screen changes and you will see “+” and “-” symbols near the Up and Down buttons. By pressing the up and down buttons, you can zoom in or out.
- Pressing the  button again the symbols change to “Up” and “Down” arrows. The up and down buttons now control panning the map up or down.
- Pressing the  button again, the symbols change to “Left” and “Right” arrows. Up and down buttons now control panning the map left or right.
- Press the “Back” button to leave the Browse mode and return to the Preview mode.
- Press the Back button again to return to the Data screens.

3.4.2.3 On Garmin Edge devices with a touch screen

Use the  button to set a waypoint when you are in the data field screens. Use the Bottom right button to set a waypoint in map Preview mode.

- Tap on the screen to enter the Browse mode. The screen changes with an audible confirmation and you will see “+” and “-” symbols overlaying the screen. Tap these symbols to zoom in or out.
- Swipe the screen to pan around.
- Press the Back button to return to the Preview mode. An audible confirmation is given.
- Press the Back button again to return to the Data screens.

3.4.2.4 Additional remarks



On some devices, the preview mode will *also* show the aforementioned symbols next to the Up and Down buttons. This is outside of the Ski Tracker application’s control. If Preview mode does not operate as you expected, press the select/start button to enter Browse mode.



Also, the “+/-“, “up/down” and “left/right” symbols might appear overlaid on top of one another. Just press the select/start button repeatedly, until they are not overlaid anymore.



The development simulator does not show the zoom/pan symbols on the Garmin D2 Charlie and the Garmin Descent MK1; the functionality nonetheless works as advertised.

3.4.2.5 Create route/itinerary

It is possible to create a route or itinerary that you can then follow during your skiing or snowboarding session.


1. To create a “drawing” of your route, you need to create what’s called a polyline. Please visit this web resource:
<https://developers.google.com/maps/documentation/utilities/polylineutility>
2. Please read the instructions and create your route.
When you are done, copy the text in the field “Encoded Polyline”. Make sure you don’t miss any characters. If you can’t see all of the text, enlarge the field by dragging the bottom right corner or use Ctrl-A to make sure all text is selected before copying.
3. Open the Ski Tracker’s settings screen in Garmin connect mobile or Garmin Express. Find the field labeled “Route/itinerary” and paste the text in there.
4. When you start the Ski Tracker app and go to the Map view screen, you will now see your route/itinerary, which you can now follow.

3.5 Auto Pause

- Take a break any time you like and for as long as you like. The Ski Tracker pauses automatically when no movement is detected. Lines will show red. When you start moving again, registration automatically resumes and lines turn green. You will also feel a short vibration.

In the settings of the app, you can disable this auto pause functionality if you want to. See [Auto Pause](#).

3.6 Stop Recording

- At the end of your skiing day, to stop recording the session, press the Start button once more. A summary screen is shown in which you can decide whether to Save or Discard the session.
- Button devices: (use Up/Down to move the green dot to select the desired action and then) press Start to actually Save (or Discard) the session.
- Touch screen devices:
 - Tap Yes to save your recording and quit the app.
 - Tap No to remove your recording and quit. Confirm your choice in the next confirmation screen if you are really sure you wish to discard your session.
 - Tap  to instead return to the recording.
On a Garmin Vivoactive 3, Swipe Right!



Once saved on the watch, the recording will be uploaded to Garmin if you are connected to your phone and you have set your watch to upload immediately. The recording can be seen in Garmin Connect (and optionally, also in connected services such as Strava).

3.7 Locking keys

While you have your gloves on and are performing your acrobatic tricks on the slopes, there is a risk that the recording might be inadvertently interrupted by an unwanted key press. To prevent this from happening, it is possible to lock the keys so that the recording is not interrupted even when buttons or the screen happen to be triggered.

By default, the keys lock automatically if the corresponding setting ([Auto lock](#)) is enabled and the application detects that you are on the move.

The procedure to manually lock the device is dependent on the type of device.

Device Type	Comments / Procedure
Non-touchscreen watches	Press the UP button 3 times when in the first record data screen. Your watch will vibrate, stating that it is locked and an exclamation sign is displayed behind the time. Press the UP button 3 times again to unlock. The watch vibrates again.
Touchscreen watches	Tap 3 times at the top of the screen when in the first data screen. Your watch will vibrate, stating that it is locked and an exclamation sign is displayed behind the time. Tap 3 times onat the top of the screen again to unlock. The watch vibrates again.
Garmin Vivoactive devices	Use its standard functionality: press back key for 3 seconds.
Garmin Edge devices	Use Edge-specific “standard” lock function.

4 Overview of configuration settings

The application is highly configurable, though most default options will probably work just fine for most use cases. Available settings are discussed in this section.

4.1 License Key

See: [Free vs. Pro Versions](#). Enter the license key you have obtained here.

4.2 Fetch Weather automatically

See: [Start screen](#), Weather Info.

You can turn this functionality off here, if it is giving you issues.

4.3 Contrast Colors

Determines how you would like to see your Ski Tracker screens:

- as black text on a light gray background
- as black text on a white background
- as white text on a black background

4.4 MapView

4.4.1 Use MapView

See: [Fourth screen: Take Me Home / MapView](#).

When this setting is ON and supported by your device, you will have a map visible to you while recording a session. In all other cases, you will see the take me home screen instead.

Devices with MapView support include: Descent MK1, Edge 1030, Edge 520 plus, Edge 820, Edge 820 Explore, Edge 830, Edge Explore, Fenix 5 plus, Fenix 5S Plus, Fenix 5X, Fenix 5X plus, Fenix 6SPro, Fenix6Pro, Fenix6x Pro, Fore runner 945, Marq Athlete, Marq Aviator, Marq Captain, Marq Driver, Marq Expedition.

4.4.2 Route

See: [Create route/itinerary](#).

Paste a Polyline route here to have it overlaid on your MapView screen.

4.5 Auto Pause

See: [Auto Pause](#)

Set ON to have the application pause on inactivity, and resume recording automatically.

4.6 Thresholds

In order to automatically determine whether you have started a downhill or lift lap, the app tracks these values:

4.6.1 Threshold speed for detection Lift Lap

If you go up for 4 seconds in a row and the speed is less than the 15 km/h specified here, the app assumes you are in a lift and will record this as a lift lap.

4.6.2 Threshold height for detection Downhill Lap

If you go down for 3 consecutive seconds and the difference in height in a second is 2 meters or more, the app assumes you are on a downhill lap. You can set a different height threshold here.



The standard values of 15 km/h and 2 meters in the two configuration settings above, are treated as the default values and the app will therefore convert these values automatically to equivalent miles/h and feet if your watch is set to use imperial units instead of metric ones.

If your watch uses imperial units and you specify any other values, however, then these values are NOT converted but instead assumed to be the actual miles/h and/or feet you wanted.

4.6.3 Seconds to detect Lift Lap

Works in conjunction with the setting Threshold speed for detection Lift Lap. This value specifies the number of seconds needed to detect a lift lap.

4.7 Wind unit

See: [Start screen](#), Weather Info.

In this setting you can choose the wind unit to be expressed in km/h, respectively mi/h if your watch uses imperial units; or in m/s.

4.8 Auto lock

See: [Locking keys](#)

When this setting is ON, the screen and/or buttons are automatically locked when the measured speed is above 2 miles/km per hour. To change screens, you can manually unlock by pressing the up-button 3 times within 3 seconds or tapping the top of the screen 3 times for touch screens.

When this setting is OFF, no locking occurs. We advise to lock the keys/screen manually.

4.9 Set default screen

Here you can change which screen is the first screen to show up when a session is started.

4.10 Rearranging the data fields onto the data screens

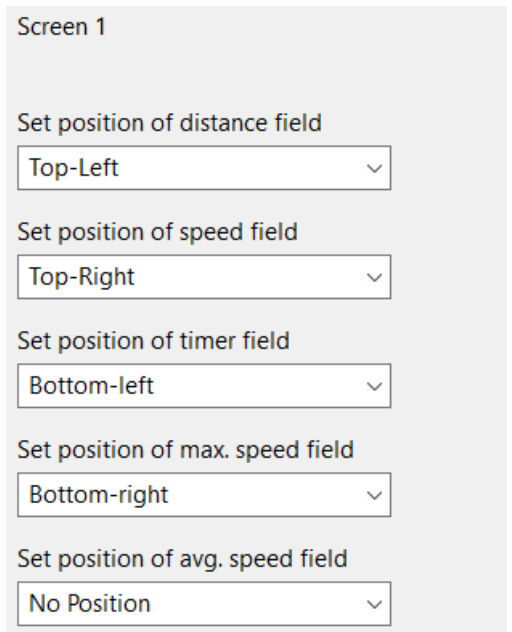
If you feel the need to reconfigure the screen layout, you can draw 3 screens on a piece of paper and put in the data fields you would like to see per screen. This way you won't mix up or set too many fields on the same screen (you may get a warning about this on the start screen).

Next, select per screen which fields to show on which position.

In the example shown to the right, screen 1 is being configured. The "distance" field (metric) is slotted into the top-left position, the "speed" field is slotted into the top right position, the "timer" field is slotted into the bottom left position, and so forth.

"No position" means the associated metric is not being displayed on this screen.

Note that there are plenty metrics available that are not actively being shown on any of the screens in the default lay-out. Review all available settings to decide which ones you are best served by.



Screen 1

Set position of distance field
Top-Left

Set position of speed field
Top-Right

Set position of timer field
Bottom-left

Set position of max. speed field
Bottom-right



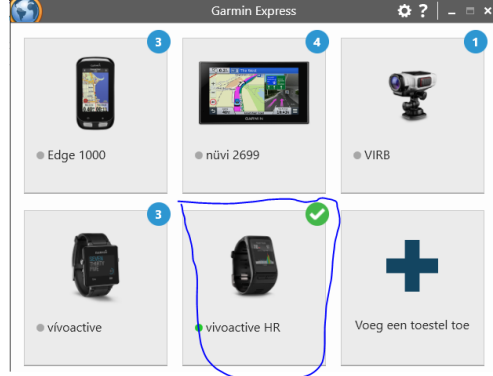
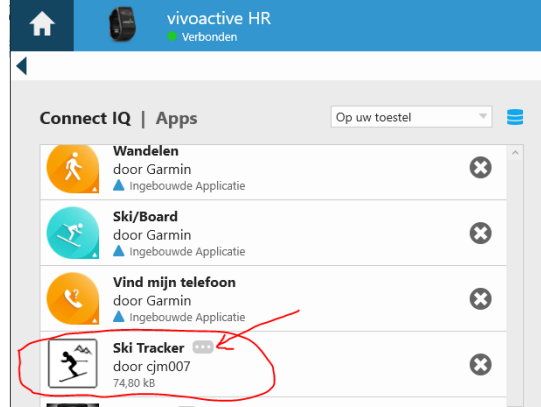
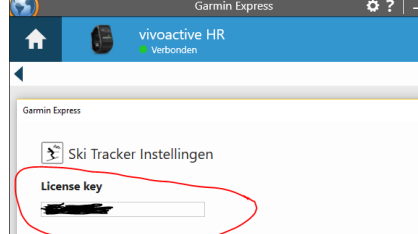
Set position of avg. speed field
No Position

5 Managing Configuration Settings

The previous section described which configuration settings are available and what they do. This section now focuses on the “how-to” steps for actually changing these settings.

- Managing Settings can be done in two ways:
1. With your computer, via Garmin Express
 2. On your phone, via the Garmin ConnectIQ app.
(You can also navigate via the Garmin Connect app, which redirects you to the ConnectIQ app for the settings.)

5.1 With the computer

Attach your Garmin watch to your computer.	
Start the program Garmin Express, if it does not automatically start	
Find your connected watch between the listed devices	
Click Control App. Locate the “Ski Tracker” app in the list and click the three-dots symbol near the application’s name:	
You are now in the settings, where you can enter your license key.	

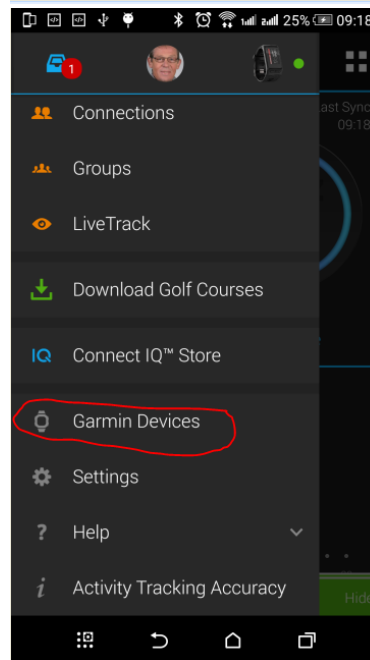
Save your changes on exit.



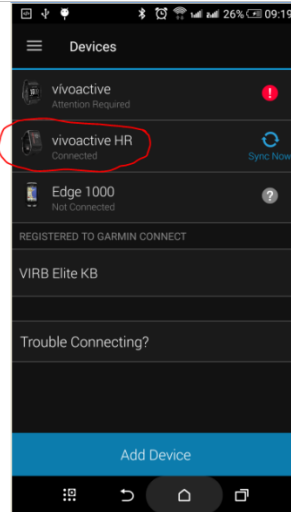
5.2 With your mobile phone

Start the Garmin ConnectIQ App.

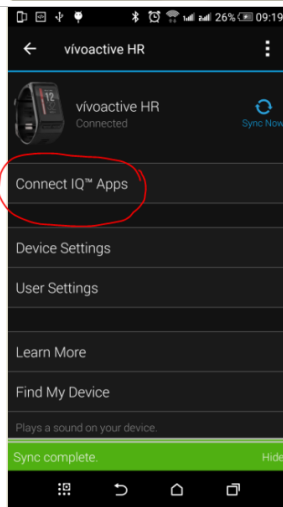
Click on the “menu” symbol (this may be different from screenshot depending on phone brand and garmin connect version); and go to “Garmin devices”.



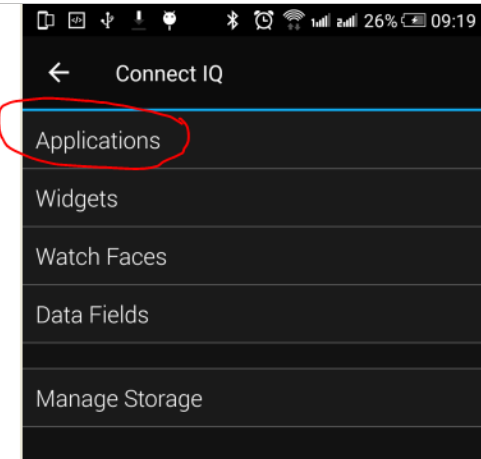
Select your Garmin watch:



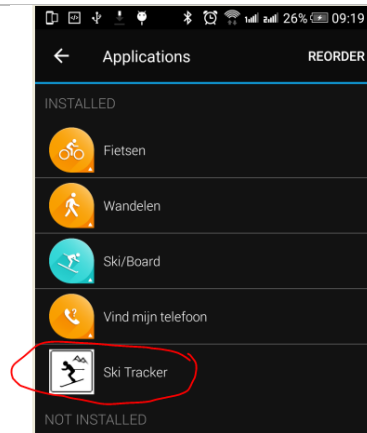
Tap "Connect IQ apps"



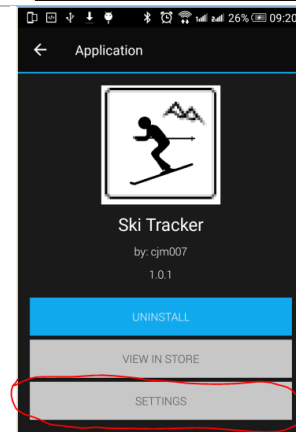
then tap "Applications"



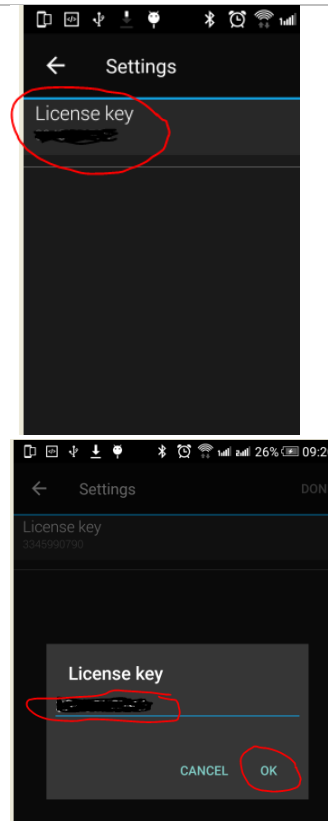
In the list of applications, tap the **Ski Tracker** App



Tap the settings button



you can now enter your license key by tapping on the field



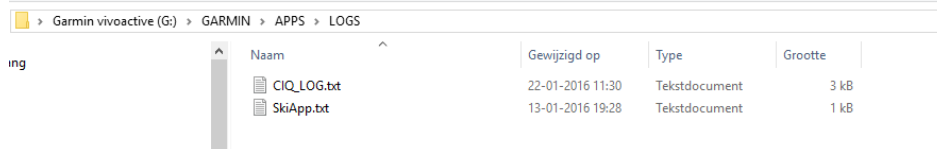
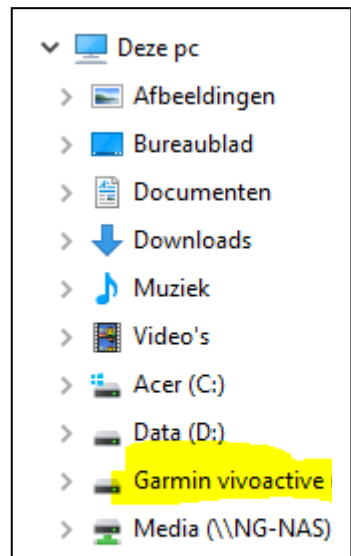
Save your entry as appropriate on your phone (click on OK and then on OK or Done in the right upper corner).



6 Troubleshooting

Should you encounter problems with the app, then there may be useful clues and diagnostics in the application log. Here is how to enable diagnostics and subsequently extract the log to be shared with the developer:

- Connect your watch to your computer. A soundbite indicates the watch is connected.
- Open your file explorer if it didn't already pop up automatically and look for your Garmin device name.
- Open the folder GARMIN->APPS->LOGS and add an empty file called **CIQ_LOG.txt** to this directory.
- Disconnect your watch.
- Start the Ski Tracker App again and perform the actions leading up to your problem. If the Ski Tracker app crashes, the error should be written to this file.
- Connect your watch to the PC again, go to the log-directory and copy the file.



- Mail the file CIQ_LOG.txt to kees@007software.eu along with a description of the issue and your steps to reproduce.

7 Miscellaneous Notes

→ General

- When you use this app, it is better to disable all notifications from your phone. When skiing, you won't be able to check them anyway.

→ Language Support

- The app can be used in the following languages English, Dutch, French, Italian, Polish, Portuguese, Danish, Czech and German.
If you want a new translation in your language, send me a mail!
- Please report any translation issues to kees@007software.eu. (I'm Dutch :))

8 Software disclaimer

My apps which can be downloaded from the Garmin store are provided 'as is' without warranty of any kind, either express or implied, including, but not limited to, the implied warranties of fitness for a purpose, or the warranty of non-infringement. Without limiting the foregoing, I (Kees Bond) make no warranty that:

1. the software will meet your requirements
2. the software will be uninterrupted, timely, secure or error-free
3. the results that may be obtained from the use of the software will be effective, accurate or reliable
4. the quality of the software will meet your expectations

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