

# Positioning

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Some operations and features are SIM card and/or network dependent, MMS dependent, or dependent on the compatibility of devices and the content formats supported. Some services are subject to a separate charge.

Refer to the user guide for other important information about your device.

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# Positioning


The Global Positioning System (GPS) is a worldwide radio navigation system that includes 24 satellites and their ground stations that monitor the operation of the satellites.

A GPS terminal receives low-power radio signals from the satellites, and measures the travel time of the signals. From the travel time, the GPS receiver can calculate its location to the accuracy of meters.

The coordinates in the GPS are expressed in degrees and decimal degrees format using the international WGS-84 coordinate system.

The Global Positioning System (GPS) is operated by the government of the United States, which is solely responsible for its accuracy and maintenance. The accuracy of location data can be affected by adjustments to GPS satellites made by the United States government and is subject to change with the United States Department of Defense civil GPS policy and the Federal Radionavigation Plan. Accuracy can also be affected by poor satellite geometry. Availability and quality of GPS signals may be affected by your location, buildings, natural obstacles, and weather conditions. The GPS receiver should only be used outdoors to allow reception of GPS signals.

GPS should only be used as a navigation aid. It should not be used for precise location measurement and you should never rely solely on location data from the GPS receiver for positioning or navigation.

To enable or disable different positioning methods, Positioning (GPS) such as Bluetooth GPS, press , and select **Tools > Settings > General > Positioning > Positioning methods**.

## Set up GPS connection

You can use GPS with an external GPS receiver.

To enable the use of an external GPS receiver, see the device settings in the user guide.

Bluetooth technology provides a wireless connection between the GPS receiver and your device. You may therefore freely position the GPS receiver for optimum satellite reception.

To set up your GPS connection:

- 1 Fully charge your GPS receiver, and switch it on.
- 2 Set up a Bluetooth connection between your device and the GPS receiver.

- 3 Place your GPS receiver in a position with an unobstructed view to the sky.
- 4 Select the external GPS receiver when the application opens. The GPS connection is established.

It may take several minutes to establish the first connection. Subsequent connections are faster, but if you have not used GPS for several days, or are far away from the last location you used it, it may take several minutes again to find a strong signal.

## About satellite signals

If your GPS receiver cannot find the satellite signal, consider the following:

- Check that the Bluetooth connection between the devices is active.
- If you are indoors, go outdoors to receive a better signal.
- If you are outdoors, move to a more open space.
- If the weather conditions are bad, in such a case the signal strength may also be affected.
- Establishing a GPS connection may take from a couple of seconds to several minutes.

## Position requests

You may receive a request from a network service to receive your position information. Service providers may offer information about local topics, such as weather or traffic conditions, based upon the location of your device.

When you receive a position request, a message is displayed showing the service that is making the request. Select **Accept** to allow your position information to be sent or **Reject** to deny the request.

## Maps



With **Maps**, you can see your current location on the map, browse maps for different cities and countries, search for addresses and different points of interest, plan routes from one location to another and save locations as landmarks and send them to compatible devices.


You can also purchase extra services, such as city guides and a navigation service with voice guidance.

**Maps** uses GPS. You can define the positioning methods used with your device in the device settings. See the user guide for details.

Almost all digital cartography is inaccurate and incomplete to some extent. Never rely solely on the cartography that you download for use in this device.

When you use **Maps** for the first time, you may need to define an internet access point for downloading map information for your current location. To change the default access point later, select **Options > Settings > Network > Default access point**.

Downloading maps may involve the transmission of large amounts of data through your service provider's network. Contact your service provider for information about data transmission charges.

 **Tip!** You can also download maps by using a wireless LAN connection or through the internet using Nokia MapLoader.

To receive a note when your device registers to a network outside your home cellular network, select **Options > Settings > Network > Roaming warning > On**.

## Browse maps

The map coverage varies by country.

When you open **Maps**, Maps zooms in to the location that was saved from your last session. If no position was saved from the last session, the **Maps** application zooms in to the major city of the country or region you are in, based on the information the device receives from the cellular network. At the same time, the map of the location is downloaded. The maps are automatically saved in the device.

To establish a GPS connection and zoom in to your current location, select **Options > Find place > GPS position [0]**, or press **0**.

To move on the map, scroll up, down, left, or right. To view detailed information of a location on the map, scroll to it, press the scroll key and select **Show details**. To use the location, for example, as a starting point for a nearby search or to plan a route, press the scroll key, and select the desired option. To return to your current location, press **0**, or select **Options > Find place > GPS position [0]**.

When you browse the map on the display, for example, move to another country, a new map is downloaded automatically. All the maps downloaded by **Maps** are free of charge, but downloading may involve the transmission of large amounts of data through your service provider's network. For more information on data transmission charges, contact your service provider.

Your current location is indicated on the map. The compass rose shows the orientation of the map, which is towards north by default.

To move on the map, scroll up, down, left, or right. To view detailed information of a location on the map, scroll to it, press the scroll key, and select **Show details**. To return to your current location, select **Back** or **Options > Current location**.

To zoom in or out on the map, press **\*** or **#**. To switch between the 2-D and 3-D views, press **0**.

To define what kind of points of interest are shown on the map, select **Options > Map options > Categories** and the desired categories.

To view information about satellites when you are using **Maps**, select **Options > Map options > Satellite info**. You can also see a GPS indicator on the display when browsing maps. It indicates whether your device is receiving signals from satellites. See 'Satellite information', p. 7.

To view points of interest near your current location, select **Options > Search > Search nearby**. To find points of interest near other locations, move on the map, and select **Options > Search > By category**.

To save a location as a landmark, in the desired location, press the scroll key, and select **Save > As landmark**, enter a name for the landmark, and select the categories you want to include it in.

To take a screenshot of your location, select **Save > As image**. The screenshot is saved in **Gallery**.

To view saved landmarks, select **Options > Find place > Favourites**.

To send a landmark to a compatible device, in the landmarks view, press the scroll key, and select **Send**. If you

send the landmark in a text message, the information is converted to plain text.

To adjust the network, routing, and general settings, select **Options > Settings**.

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## Satellite information

A GPS indicator is shown on the display when you browse maps. The circles in the icon are satellites.

A yellow circle indicates that the device has found a satellite, and a green circle that the device is receiving signal from the satellite. When all the circles are green, the device receives enough data from the satellites to calculate the coordinates of your current location.

To check how many satellites your device has found, and whether your device is receiving satellite signals from the satellites, select **Options > Map options > Satellite info**.

If your device has found satellites, a bar for each satellite is shown in the satellite info view. The longer the bar, the stronger the satellite signal. When your device has received enough data from the satellite signal to calculate the coordinates of your location, the bar turns black.

Initially your device must receive signals from at least four satellites to be able to calculate the coordinates of your location. When the initial calculation has been made, it

may be possible to continue calculating the coordinates of your location with three satellites. However, the accuracy is generally better when more satellites are found.

## Download maps

When you browse the map on the display, for example, move to another country, a new map is downloaded automatically. These downloaded maps are free of charge, but downloading may involve transmission of large amounts of data through your service provider's network. For more information on data transmission charges, contact your service provider.

You can view the amount of transferred data from the data counter (kB) shown on the display. The counter shows the amount of network traffic when you browse maps, create routes, or search for locations online.

To check whether the maps that are downloaded to your device have been updated on the map server, select **Options > Settings > Network > Options > Check for map updates**.

To prevent the device from automatically downloading maps through the internet, for example, when you are outside your home cellular network, select **Options > Settings > Network > Use network > Off**.

To define how much space you want to use on the selected memory location for saving maps data or voice guidance files, select **Options > Settings > Max. memory card use (%)**. This option is available only when a compatible memory card is available. When the memory is full, the oldest map data is deleted. The saved maps data cannot be deleted manually from the memory card.

## Nokia Map Loader

Nokia Map Loader is PC software that you can use to download and install maps for different countries to your device from the internet. You can also use it to download voice files for turn-by-turn navigation.

To use Nokia Map Loader, you must first install it to a compatible PC. You can download the PC software from the internet at [www.nokia.com/maps](http://www.nokia.com/maps). Follow the instructions on the screen.

You must use Nokia Maps before using Nokia Map Loader. Nokia Map Loader uses the Maps history information to check the version of map data to be downloaded.

After you have installed the PC software to your PC, to download maps, do the following:

1. Connect your device to the PC by using a compatible USB data cable. Select Mass storage as the USB connection mode.



2. Open Nokia Map Loader in your PC. Nokia Map Loader checks the version of map data to be downloaded.
3. Select the maps you want, and download and install them to your device.

## Search for locations

To view points of interest near your current location or other locations on the map, select **Options > Find place > Nearby** and a category.

To search for a point of interest by name, select **Options > Find place > Keyword search**, or start entering the first letters of the name, and select **Find place**.

To search for a location by address, select **Options > Find place > By address**. You must enter the city and country. To use an address you have saved to a contact card in **Contacts**, select **Options > Find place > By address > Options > Select from contacts**.

To view a search result on a map, press the scroll key and select **Show on map**. To return to the results list, select **Back**.

To view a list of your previous locations, select **Options > Find place > Recent**.

## Plan a route

To plan a route from one location to another (for example, from your home to your office), do the following:

1. Scroll to a point on the map, press the scroll key, and select **Route from**.
2. Scroll to **Select**, and select **Options > Select** and the desired option.  
To adjust the routing settings, such as the mode of transportation, select **Options > Settings > Routing**.
3. To select the destination, scroll to **To**, and select **Options > Select**, and the desired option.
4. To view the route itinerary, select **Options > Show route**. The route is calculated using the selected routing settings.

To view the itinerary waypoints on the map, select **Options > Show on map**.

To run a simulation of the created route, select **Options > Start simulation**.

## Extra services for Maps

You can purchase and download different kinds of guides, such as city and travel guides, for different cities to your

device. You can also purchase a turn-by-turn navigation service with voice guidance to use it in **Maps**.

The downloaded guides are automatically saved in the device memory or on a compatible memory card (if inserted).

## Navigation

To purchase a navigation service with voice guidance to use in **Maps**, select **Options > Extra services > Add navigation**.

After purchasing the navigation upgrade, the service is available through **Maps**. The license you purchase for navigation is device specific and cannot be transferred from your device to another device.

After creating a route in **Maps**, to start navigation to the desired destination with GPS using voice guidance, select **Options > Start navigation**. See 'Plan a route', p. 9. You can also start navigation by selecting any location on the map or in a results list, and **Navigate to**.

When you use navigation for the first time, you are prompted to select the language of the voice guidance, and download the voice guidance files of the selected language online. To change the language later, in **Maps** main view, select **Options > Settings > General > Voice guidance**, a language, and download the voice guidance files for the selected language. You can also download

voice guidance files using Nokia MapLoader. See 'Download maps', p. 8.

To discard the created route and use another route, select **Options > Alternative route**.

To view only the next turns and hide the map, select **Options > Map options > Next turns**.

To stop navigation, select **Options > Stop navigation**.

## Guides

To purchase and download different kinds of guides, such as city and travel guides, for different cities to your device, select **Options > Extra services > Guides**.

The guides provide information about attractions, restaurants, hotels, and other points of interest. The guides must be downloaded and purchased before use.

To browse a downloaded guide, on the **My guides** tab in **Guides**, select a guide and a subcategory (if available).

To download a new guide to your device, in **Guides**, scroll right to the **Nearest guides** or **All guides** tab, select the desired guide, and press **OK**. To purchase the guide, scroll left to the **My guides** tab, select the downloaded guide, and enter your payment details. You can pay for the guides through a credit card or have the amount charged to your phone bill (if supported by your cellular network service provider).

To confirm the purchase, select **OK** twice. To receive a confirmation of the purchase through e-mail, enter your name and e-mail address, and select **OK**.

## Landmarks

With **Landmarks**, you can save the position information of specific locations in your device. You can sort the saved locations into different categories, such as business, and add other information, such as addresses, to them. You can use your saved landmarks in compatible applications, such as **GPS data** and **Maps**.

The coordinates in the GPS are expressed in degrees and decimal degrees format using the international WGS-84 coordinate system.

To create a new landmark, select **Options > New landmark**. To make a positioning request for the coordinates of your current location, select **Current position**. To enter the position information manually, select **Enter manually**.

To edit or add information to a saved landmark (for example, a street address), scroll to a landmark, and press the scroll key. Scroll to the desired field, and enter the information.

To view the landmark on the map, select **Options > Show on map**. To create a route to the location, select **Options > Navigate using map**.

You can sort your landmarks into the preset categories and create new categories. To edit and create new landmark categories, scroll right in **Landmarks**, and select **Options > Edit categories**.

To add a landmark to a category, scroll to the landmark in **Landmarks**, and select **Options > Add to category**. Scroll to each category to which you want to add the landmark, and select it.

To send one or several landmarks to a compatible device, select **Options > Send**. Your received landmarks are placed in the **Inbox** folder in **Messaging**.

## GPS data

**GPS data** is designed to provide route guidance information to a selected destination, position information about your current location, and traveling information, such as the approximate distance to the destination and approximate duration of travel.

To use **GPS data**, your external GPS receiver must receive position information from at least three satellites to calculate the coordinates of your location.

## Route guidance

To use route guidance, select **Navigation**. Start the route guidance outdoors. If started indoors, the GPS receiver may not receive the necessary information from the satellites.

Route guidance uses a rotating compass on the device display. A red ball shows the direction to the destination, and the approximate distance to it is shown inside the compass ring.

Route guidance is designed to show the straightest route and the shortest distance to the destination, measured in a straight line. Any obstacles on the route, such as buildings and natural obstacles, are ignored. Differences in altitude are not taken into account when calculating the distance. Route guidance is active only when you move.

To set your trip destination, select **Options > Set destination** and a landmark as the destination, or enter the latitude and longitude coordinates. Select **Stop navigation** to clear the destination set for your trip.

## Retrieve position information

To view the position information of your current location, select **Position**. An estimate of the accuracy of the location is shown on the display.

To save your current location as a landmark, select **Options > Save position**.

Landmarks are saved locations with more information, and they can be used in other compatible applications and transferred between compatible devices.

## Trip meter

Select **Trip distance > Options > Start** to activate trip distance calculation, and **Stop** to deactivate it. The calculated values remain on the display. Use this feature outdoors to receive a better GPS signal.

Select **Reset** to set the trip distance and time and average and maximum speeds to zero, and to start a new calculation. Select **Restart** to also set the odometer and total time to zero.

The trip meter has limited accuracy, and rounding errors may occur. Accuracy can also be affected by availability and quality of GPS signals.