

## Welcome to Topo Maps

*This PDF version of the user guide has been automatically generated from the online version. It is intended to be printable on letter or A4 paper; please let us know if you have any problems with that, or anything else.*

### Main Features

Topo Maps is a viewer for topographical maps published by the US Geological Survey and Natural Resources Canada. These maps cover the entire of the United States and Canada, including Alaska, Hawaii, Puerto Rico and the U.S. Virgin Islands. Their main use is for hiking and other outdoor activities.

In total, more than 70,000 individual maps are available. You can download as many of these as you like, limited only by the storage capacity of your device. Downloads are free of charge.

Once downloaded, the maps are stored until you remove them. So unlike the iPhone's built-in Maps app, you can use Topo Maps when you have no network connection. Just download the maps that you need while you have WiFi or cellular coverage and you're all set.

As well as the maps themselves, Topo Maps also downloads terrain data. This is used to apply a 3D shading effect over the map to make the shape of the land clearer. You can even adjust the direction of the simulated sunlight that this effect uses. The terrain data is also put to other purposes, including a visibility mode which calculates what should be visible from any viewpoint.

The app contains a database of more than a million placenames, which you can search to find the map that you need and to find individual features on those maps.

You can add your own waypoints to the maps, and download waypoint files from the internet.


You can use the iPhone's GPS to show your current position, and keep the map centered on your position as you move, and you can use its compass to orient the displayed map with the ground.


### Button Overview

There are three groups of buttons; two groups at the bottom of the screen are controlled by slider buttons at the bottom left, and one group at the top of the screen is accessible when the co-ordinate display and crosshairs are shown.


 GPS: shows your current position on the map.


 Search: search for landmarks and waypoints.


 Compass: rotate map to align with the ground.

 Help: shows a brief help page.


 Go to Apps: show the current area in another maps app or website.


 Waypoints: manage manually-entered waypoints.

 Waypoint files: download and access waypoint files.

 Map Settings: adjust map appearance, erase, and change resolution.

 Distance and Bearing: Show distance rings.

 Add Waypoint: place a waypoint at the crosshairs.

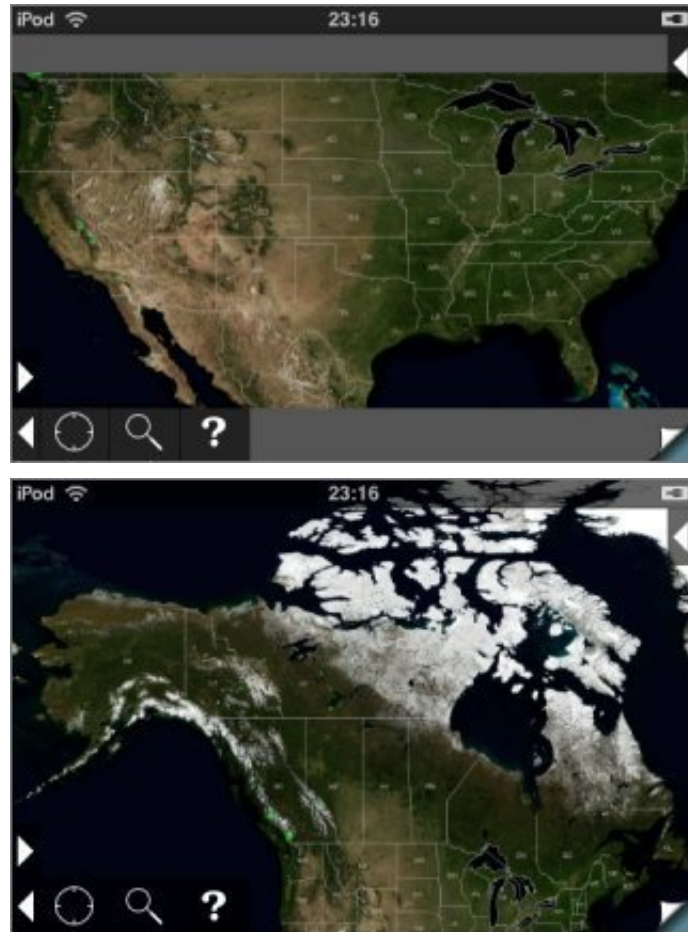
 Visibility mode: compute what's visible.

*(The screenshots in this guide were created on iOS 6, and the appearance has changed slightly since iOS 7. The functionality is unchanged.)*

## Installing Maps

### The Index Maps

There are four index maps covering the contiguous U.S., Canada and Alaska, Hawaii, and Puerto Rico and the U.S. Virgin Islands:





To navigate between them, zoom out and scroll to the edge; an arrow button will appear.

Each map has a satellite image as a backdrop, with state borders and abbreviations superimposed. As you zoom in, various additional information will appear including national parks and major cities (population greater than about 100,000 in the U.S.):



Zooming in further, additional features including state parks, national wildlife refuges, significant peaks, lakes and rivers, and smaller towns and cities are shown. Also, the yellow grid of maps is shown:



## Selecting Maps

To select a single map to be installed, simply touch it for about half a second without moving your finger. The map will be shown in blue:



To select a block of maps to install:

1. Arrange the screen so that all the maps you want to install are visible.
2. Touch one of the corner maps until it is selected but do not lift your finger.
3. Slide your finger towards the opposite corner of the block of maps. A blue rectangle will be shown as you do so:

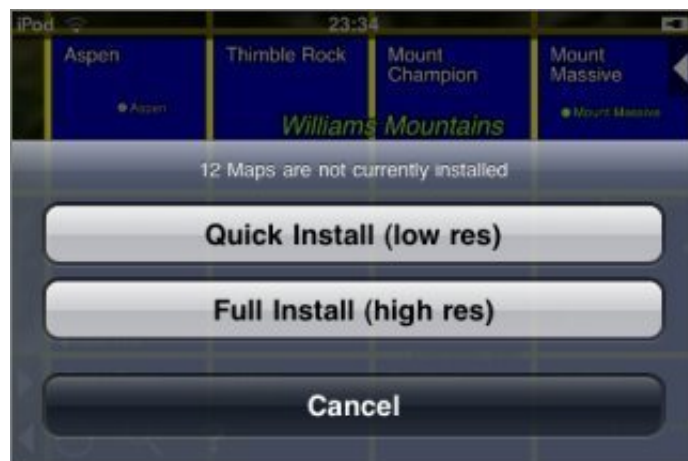


4. Lift your finger, and all of those maps (fully or partially covered) will be selected.

In a few areas, maps overlap. This happens mostly in Alaska, where 1:24,000 maps often overlap with 1:63,360 maps, and on the Canada-Alaska border. In these areas, to select the map that you want, zoom in and carefully touch at the center of the correct map's yellow box.

## High and Low Resolution Maps

Once you've selected a map or group of maps, you'll be asked whether you want a "Quick Install" or a "Full Install":



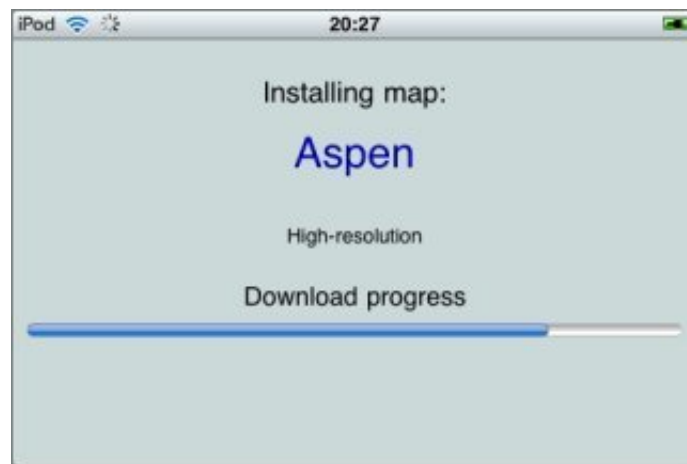
"Quick Install" downloads a lower-resolution version of the map, and is typically about ten times faster than "Full Install". It also takes much less space on your device. Generally, the low-resolution maps are good for trip planning, or to check that you have the right map, but the high-resolution versions are needed for navigation: each pixel in the low-resolution maps covers 16 pixels on the high-resolution map. The actual resolution in pixels per mile varies from place to place.

If you chose to install a low-resolution map, you can later upgrade it to high-resolution. This upgrade process only needs to download the difference between the two versions, so you don't waste any download time by downloading a low-resolution version and then upgrading.

The app limits the number of maps that can be downloaded at once to 20 high-resolution maps or 100 low-resolution maps. There is no limit to the total number of maps that you can install (except the amount of storage available on your device); these limits are purely on the number that can be downloaded in one operation.

## Installation

Having selected a map and chosen the resolution, this screen will be shown as the map or maps are downloaded:



Downloads will continue in the background for a short time if you switch to another app or put the device to sleep; however, Apple limits this to about 3 minutes.

Download time depends on the speed of your network connection. WiFi may be faster than a cellular connection, but then again it might not. Full-resolution maps are typically around 10-20 MB, or up to 40 MB for the larger Canadian maps.

Most maps come from our own high-speed servers and are ready for use as soon as downloading has finished. For about 1% of downloads in less popular areas the maps come from different servers, with two consequences. Firstly, these other servers may be slower. Secondly, an additional installation step (for file format conversion) is required when the download has completed. In this case a second progress bar is shown:





## Done

Back on the index map, sheets that have been installed are shown in green. Low-resolution "Quick Install" maps are shown in a darker shade than high-resolution "Full Install" maps:





## Viewing Maps

### Selecting a map to view

To view a map, touch its green square on the index map for about half a second. The app will "flip over" to show the topo, initially scaled so that the whole map fits on the screen:



### Flipping

At the bottom right corner of the screen, a "page curl" button lets you flip back and forth between the currently-selected topo and the index map. The two "sides" operate largely independently of each other, so you can move to a different area on the index map and flip back to the same view of your current topo.

### Moving around the map

You can move around the maps with the same gestures as many other iPhone apps:

- To pan, slide with one finger. If you "flick", the map will keep moving under its own momentum for a while.
- To zoom in, put two fingers on the screen and slide them apart. Alternatively, double-tap somewhere to zoom in 2x on that spot.
- To zoom out, put two fingers on the screen and slide them together.

When panning or zooming, take care to start with your fingers away from the buttons or distance scale, if shown.

## Low-res maps

If you zoom in on a low-res map, you'll eventually reach the limit of the map's resolution and it will appear pixelated. See Map Settings for how to upgrade the map to high resolution.

## Mosaicing adjacent maps

If you're interested in an area near the border between two or more maps, you can mosaic them together. Mosaicing is also useful to get a broad overview of a large area; this image includes six maps:



Having installed all of the necessary maps, scroll to the edge of one of them and an arrow button will appear:



Touch the button and the adjacent map will be added:



The app does not impose a limit on the number of maps that can be mosaiced, but you may find that it becomes sluggish if you add very many.


Note that some of the maps' border material will show through where they overlap.

## Limitations of Mosaicing

Most previous limitations on mosaicing no longer apply, as maps are stretched as necessary if they do not precisely match at their joins. However there are still some issues that you should be aware of:

- Mosaicing will go wrong at map projection zone boundaries; these typically occur each 6 degrees of longitude. You'll see a warning when this happens.
- GPS, co-ordinate display and waypoint positioning accuracy will fall slightly as the size of the mosaic increases. For maximum accuracy, use single maps.

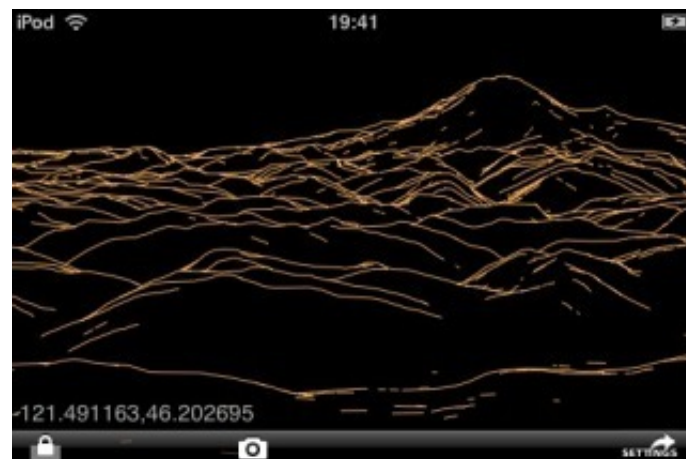
## Viewing Maps in Other Apps

 You can view the currently-shown area in another app or on the web by touching the "Go To App" button:




The first three buttons launch Google Maps or Apple Maps in one of the three different modes - maps, satellite and hybrid. You can select whether Google Maps or Apple Maps are used using a switch in the main Settings app - scroll down to find Topo Maps.

The OpenStreetMap button goes to the [www.openstreetmap.org](http://www.openstreetmap.org) website. The Panoramascopes and Offmaps buttons are shown only if those apps are installed. Offmaps is an off-line OpenStreetMap viewer. Panoramascopes is an app by the same author as Topo Maps that computes the view from the current location:



## GPS and Compass

### GPS

 To activate the GPS, touch the button with the target symbol.

Once a location has been received by the hardware, a blue spot will be shown and the map will be locked on your location. If this is on a currently-installed topo map, it will be shown; otherwise the position will be shown on the index map.



The accuracy of the fix is shown by a blue circle around the location spot, and in figures within the GPS button itself.

As new location fixes are received the position of the spot and the accuracy information will be updated. While the map is locked to your location you can zoom in and out as normal; dragging the map is possible but it will spring back to your current position when you release it.

Touching the GPS button again will stop updating the position and unlock the map, but the spot will remain visible. Touching a third time will remove the spot.

### GPS and other sources of location

Different devices have various different sources of location information:

- On the iPhone and iPads with cellular data there's a real GPS that gets accurate location fixes from satellites; it needs a fairly clear view of the sky and takes a few second or even a few minutes to get a fix.
- On the iPhone and iPads with cellular data, if you're in range of a cellular base station the ID of the base station can be used to give a very rough idea of your position.



- On the iPod touch and WiFi-only iPad, your position can be estimated based on nearby WiFi base stations. This is surprisingly accurate in urban areas, but totally ineffective in wild areas.

Typically, on an iPhone when you press the GPS button it will first show a position based on cellular base station information. This will be accurate enough to select the right map, but could easily be many hundreds of meters out. Then after a few seconds a GPS fix will be received and the display will be updated with its much more accurate position. If you're outside of cellular coverage, the app can take much longer to get a GPS fix because it doesn't have the initial clue from the cell tower; you may need to wait for several minutes, but you will eventually get a fix if you have a clear view of the sky.

## Airplane Mode

All devices have a mode that switches off all radios for aircraft regulation compliance. Note that this turns off the GPS receiver as well as the cellular and WiFi radios. So don't be tempted to enable airplane mode when you know you have no cellular reception in the hope of improving battery life. If you want to save power, you can turn off the 3G radio in Settings - General - Network; this should not affect the GPS. You might also consider removing the SIM card.

## Compass

A compass is present in the iPhone 3GS and newer, and iPad. On other devices the compass button is not shown.

⌕ To enable the compass, touch the compass button. The map is rotated to align with the ground.



## Searching

### The Search Screen

The search screen is accessible from both the topo map screen and the index map screen by touching the magnifier icon.

As you type the list of matching place names is continuously updated. If there are thousands of matching names it may take a few seconds for the list to appear. The app doesn't show a listing if more than 50,000 places match.

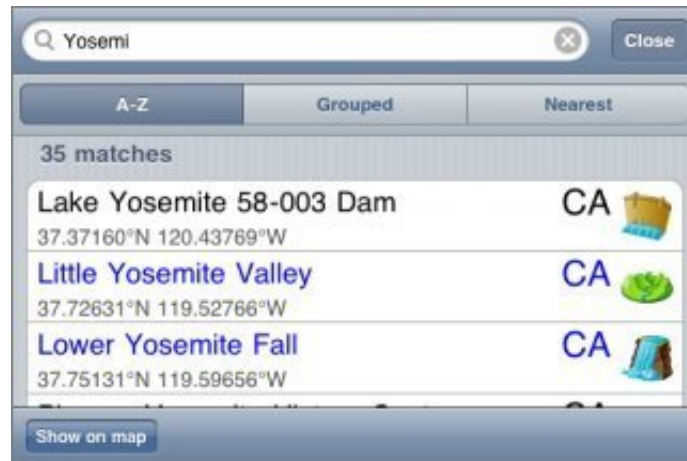


Three buttons allow you to change how the results are ordered. They can be either alphabetical, grouped according to feature type, or by distance from the center of the current screen.

### The Search Results

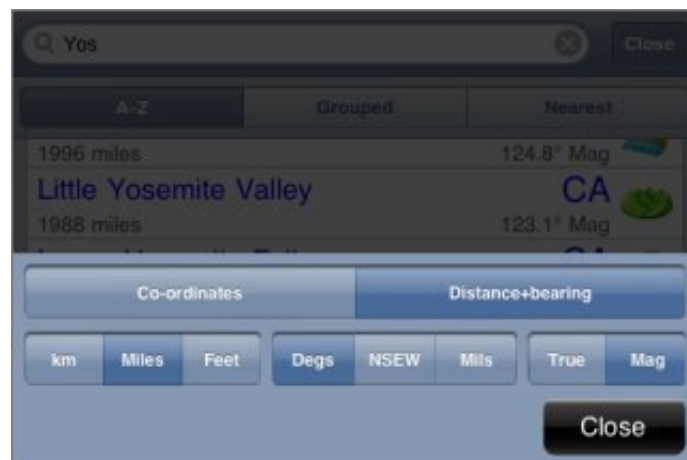
Each search result row shows the name of the feature, the state or province, a symbol indicating the feature type, and location information.





If the feature is on a topo that is already installed, the name and state are shown in blue.

The format of the location information can be changed by touching it for about half a second. A set of buttons will appear where you can change between showing co-ordinates and distance +bearing:



The available formats are the same as for the main co-ordinate and distance+bearing displays. Distance and bearing are relative to the current center of the screen.

Touching a search result will take you to that feature on the map. If the appropriate topo is already installed it will be shown, otherwise the index map will be shown.

## Waypoints

Waypoints are included in the search results. Normal waypoints are shown with a yellow/gold background, and file waypoints are shown with a Gray/silver background.

## Search Results on Maps

You can show the current search results on the map, if there are no more than 10,000 of them. Touch the "Show on map" button at the bottom left of the search screen and the positions of the search results will be shown on both the index and the topo maps with small purple spots:



To clear these spots, return to the search screen and clear the search box.

## Rivers and related features

For rivers, the app always shows the downstream end of the feature. For example, searching for a small creek will show the point where it joins a larger river and changes its name.

The same applies to other features that have upstream and downstream ends, including valleys and lakes.

## What's Included

The app contains a database of about 1.5 million feature names. These come from the USGS and Canadian government sources and have been filtered to remove some of the less useful categories. Also included are the names of the maps themselves.

Feedback about missing features or groups of features that could be removed to save space would be appreciated.

## Waypoints

### Keep Backups!

If you store important waypoints in the app, you should be sure to make regular backup copies of this data. How to do this is described on the [Waypoint Export](#) page. Do make sure that **iCloud Backup** is enabled, but do not rely entirely on that to keep your data safe.

### Adding Waypoints to the map

Firstly, make sure that the crosshairs and co-ordinate display are shown. If not, touch the arrow button at the top right of the screen.

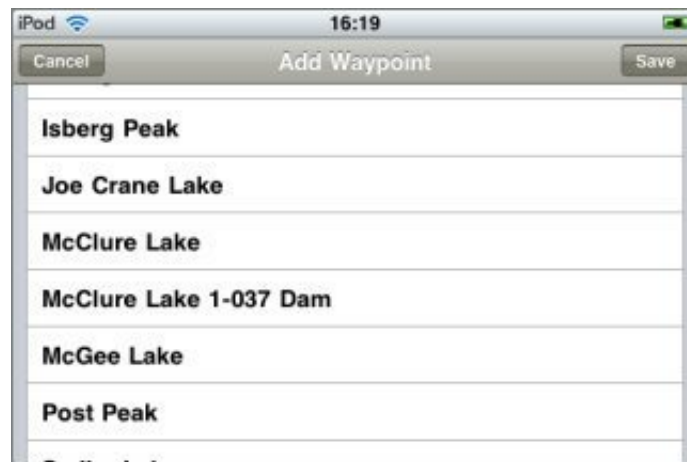


Position the crosshairs at the point where you want to place the waypoint, and touch the Add Waypoint button. The Add Waypoint screen will be shown:



Choose a symbol to use for the waypoint's pin. (Note that the grid of available symbols can be scrolled left and right.)

Various suggestions are given for the waypoint's name. Most of these are based on nearby feature names and waypoints that you have entered in the vicinity. If nearby names end in numbers, e.g. "Camp 1", it will offer the next number in the sequence i.e. "Camp 2". To use one of the suggested names simply touch it and it will be copied into the name box.



You can also type in a name or edit a suggestion by touching the name box:



Finally touch the Save button at the top right of the screen, and the new waypoint will be shown on the map:



## Other ways to add waypoints

To add a waypoint at your current location, touch the GPS button and wait for it to get an accurate fix, then touch the add waypoint button as above.

To add a waypoint at a feature from the search results, touch the search result so that the map is centered on it and then touch the add waypoint button as above.

To add a waypoint at particular co-ordinates, touch the add waypoint button and enter the co-ordinates in the co-ordinates box at the top of the screen:



You can copy-and-paste co-ordinates into this box, e.g. from a web page or email.

## Viewing Waypoint Names

Normally, waypoints show only their pin. If you tap the pin, the name is shown in a bubble:





## Editing Waypoints

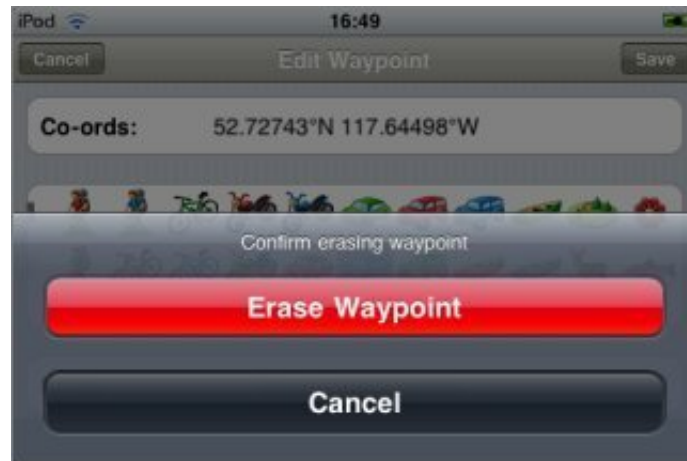
If you tap the pin's name bubble, the Edit Waypoint screen is shown. This is essentially the same as the Enter Waypoint screen and lets you change the co-ordinates, symbol and name:



## Erasing Waypoints

From the Edit Waypoint screen you can also erase a waypoint by touching the trashcan button at the bottom left of the screen:






## Moving Waypoints

To move a waypoint, simply erase it from its old location as above, place the crosshairs at the new location, and touch the add waypoint button. The Add Waypoint screen will appear and will be configured with the symbol and name of the just-erased waypoint, so you can just touch Save.

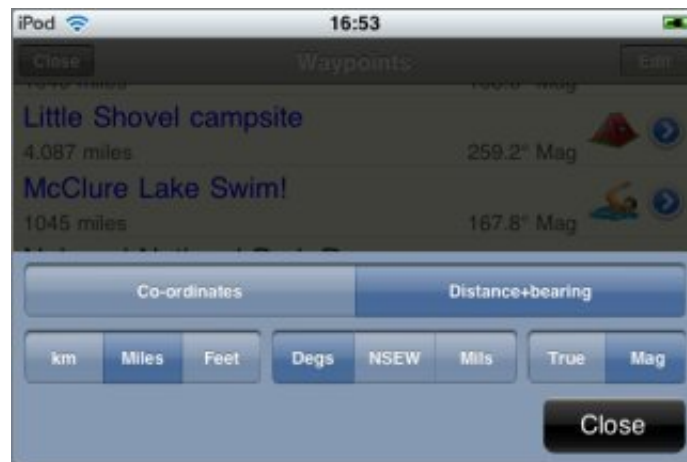
## The Waypoints Screen

 The waypoint listing screen is shown by touching the button that shows a group of pins. The waypoints are ordered alphabetically:



At the bottom right of the screen, a switch allows you to turn the display of waypoints on the map on and off.

Each row shows the name of the waypoint, its symbol, and either its co-ordinates or the distance and bearing from the center of the current map screen. You can change between co-ordinates and distance and bearing by touching this row for about half a second; these buttons will appear:



Note that the distance and bearing are from the center of the current map screen, which may or may not be your current location.

Touching a waypoint's name or symbol will go to its position on the map. Touching the blue arrow shows the Edit Waypoint screen, where you can change the name, symbol or co-ordinates.

At the top right of the screen, an Edit button allows you to more quickly erase waypoints:



## Co-ordinate display

The co-ordinate display is shown by touching the arrow button at the top right of the screen. As well as the co-ordinate display at the top of the screen, fine crosshairs are shown:



The co-ordinates shown in the display correspond to the point under the crosshairs at the center of the screen. *Note that this is not necessarily your current position.* Only if the GPS is active and the map is locked to your current position, then the co-ordinate display will show your current co-ordinates.

## Co-ordinate Formats

If you touch the co-ordinate display for about half a second without moving your finger, a set of buttons will appear that allow you to set the format:



The supported formats are:

- Decimal degrees.

- Degrees and decimal minutes.
- Degrees, minutes and seconds.
- UTM
- MGRS

UTM and MGRS are related grid reference formats. The USNG format is essentially the same as MGRS. For more information, see their Wikipedia pages: [UTM](#), [MGRS](#) and [USNG](#).

## Map Datum

The current map datum is shown to the left of the co-ordinates. Two are available, NAD27 and WGS84. NAD83 is essentially the same as WGS84. To change datum, touch this display for about half a second without moving your finger:



## Entering Co-Ordinates

After touching the co-ordinate display, a box is displayed below the format buttons into which you can type co-ordinates to go to:



The format that you enter need not be the same as the currently-displayed format; the app will try to understand what you type and show that location.

It's also possible to copy from and paste to this box, to share co-ordinates with other apps, emails, web pages etc.

## Co-Ordinates on the Topo Screen

On the topo screen, additional features are shown when you enable the co-ordinate display:

## Distance Scale

At the left hand side of the screen, a distance scale is shown:

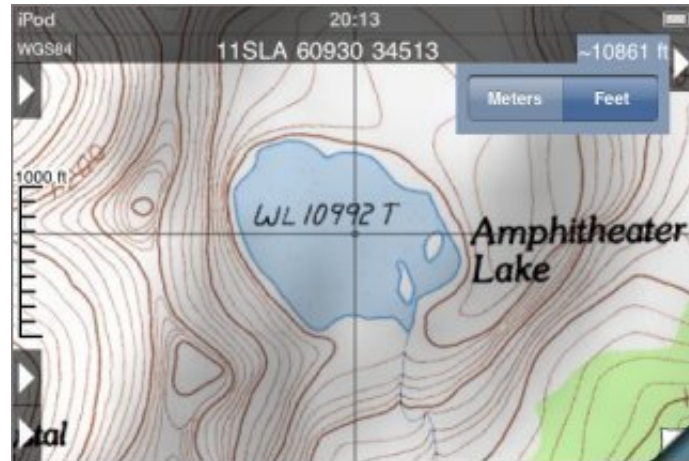


(This isn't shown on the index map because its scale is not uniform.) You can change its units to either miles, feet or meters by touching it (at its left side) for about half a second; it will cycle through the different formats.

## Estimated Altitude Display

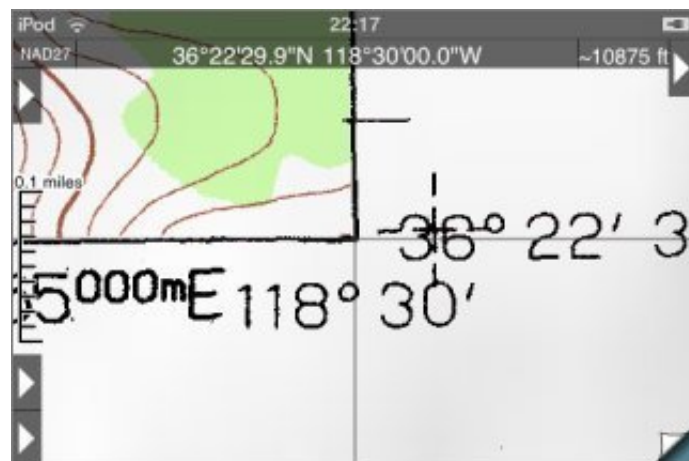
To the right of the co-ordinates display, an **estimate** of the altitude at the crosshairs is shown. This estimate is based on the data that is used to compute the hill shading effect and its resolution is limited. It will generally give reasonable values in flatter terrain but could be substantially wrong in more vertical terrain.

The units can be changed between feet and meters by touching the display for about half a second:



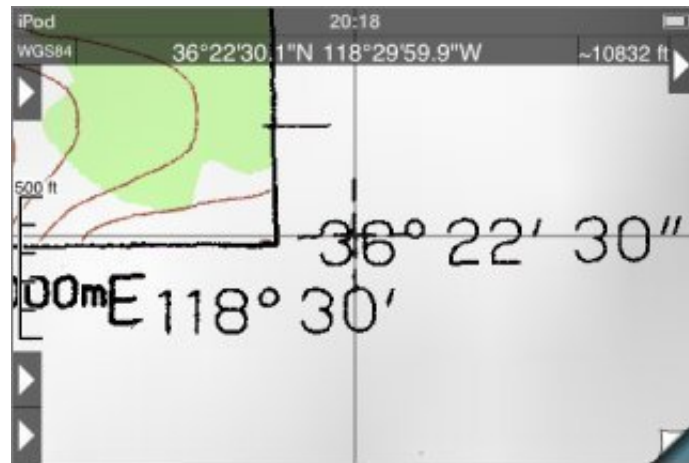
## Checking Co-Ordinates

If you need accurate co-ordinates, checking the accuracy at the corners of the map is recommended:



Most maps show NAD27 co-ordinates (you can check this in the text that's normally at the bottom-left of the map). If you want to use WGS84 co-ordinates, there is normally a cross a short distance from the corner; check there instead:






Please report any maps you find that don't align properly.

When you mosaic maps together the accuracy of the co-ordinate display may decrease. In this case it's particularly important to check the corners of the maps.

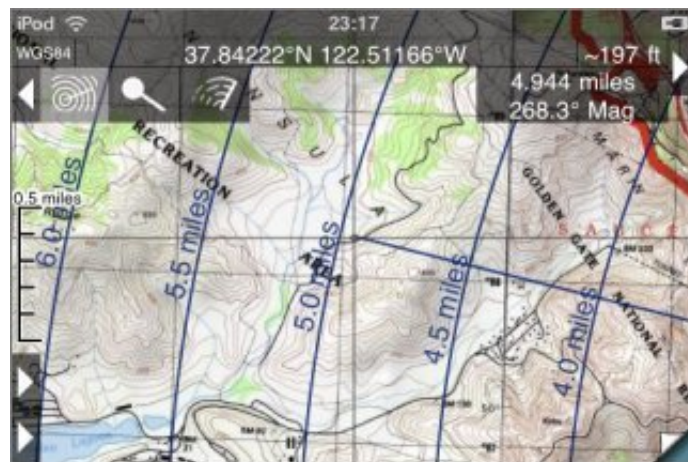


## Distance and Bearing

 Distance and bearing mode is available when the co-ordinate display is shown. Place the crosshairs over a point of interest and touch the button with the concentric circles icon:



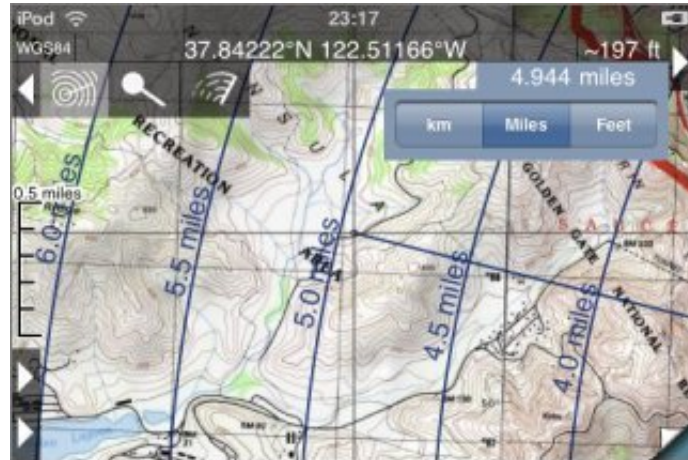
Concentric distance rings are shown, and as you move around the map the distance and bearing from the selected point to the crosshairs is updated:



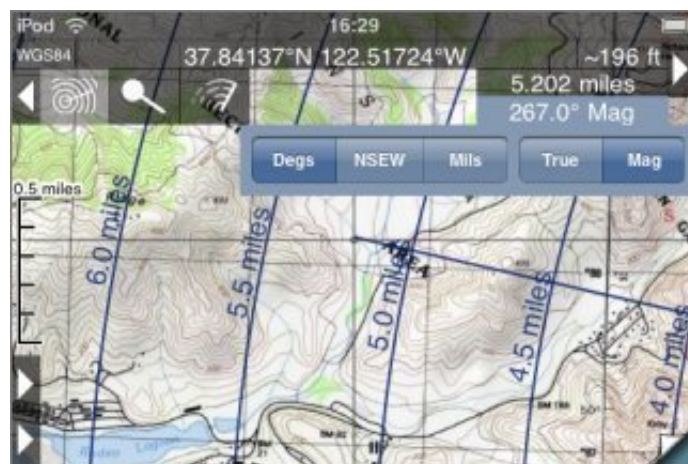
To turn off the feature, touch the button again.

## Available Units


The units for the distance and bearing can be changed by touching the appropriate display for about half a second. For the distance display the available units are km, miles and feet:



Bearings can be shown in degrees, as compass points (i.e. N, S, E, W) and mils. (There are 6400 mils in 360 degrees.) The bearing can be shown either relative to true North or relative to magnetic North. The magnetic deviation is predicted using the World Magnetic Model; it should be accurate to better than half a degree.



## Map Settings

 To display the map settings screen, touch the "map and gear" button. The top part of the screen is used to change the appearance of the topo map display.



### Slope Shading

Slope shading is the 3D effect that is applied on top of the map to emphasize relief. The app computes this using terrain data that it downloads when the maps are installed. Using controls on the map settings screen you can change its appearance:

- You can rotate the sun and shade around the hill to set the direction of the simulated sunlight. Apparently most people see the 3D effect most effectively if the light comes from the top left (NW), even though this is not a direction from which sunlight ever comes in the Northern hemisphere. If you move the sun to the South you'll see more realistic shading, which could be useful to determine which routes will be most sunny.
- The slider allows you to adjust the strength of the shading. If you slide it to the left it is disabled. Positions in the middle are appropriate for mountainous terrain. In flatter areas you can move the slider to the right to exaggerate the shading.

This map uses the default shading settings:



Here the strength has been increased:



Here the sunlight direction has been moved to the South:



For comparison, here's the same map with slope shading disabled:



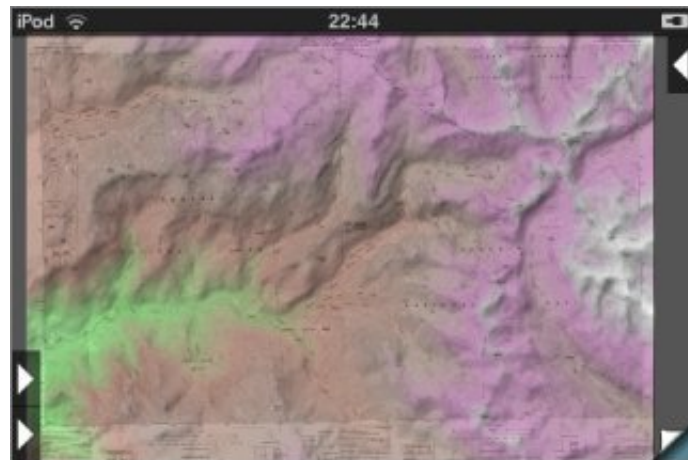


The slope shading is updated after you close the map settings window; this may take a moment.

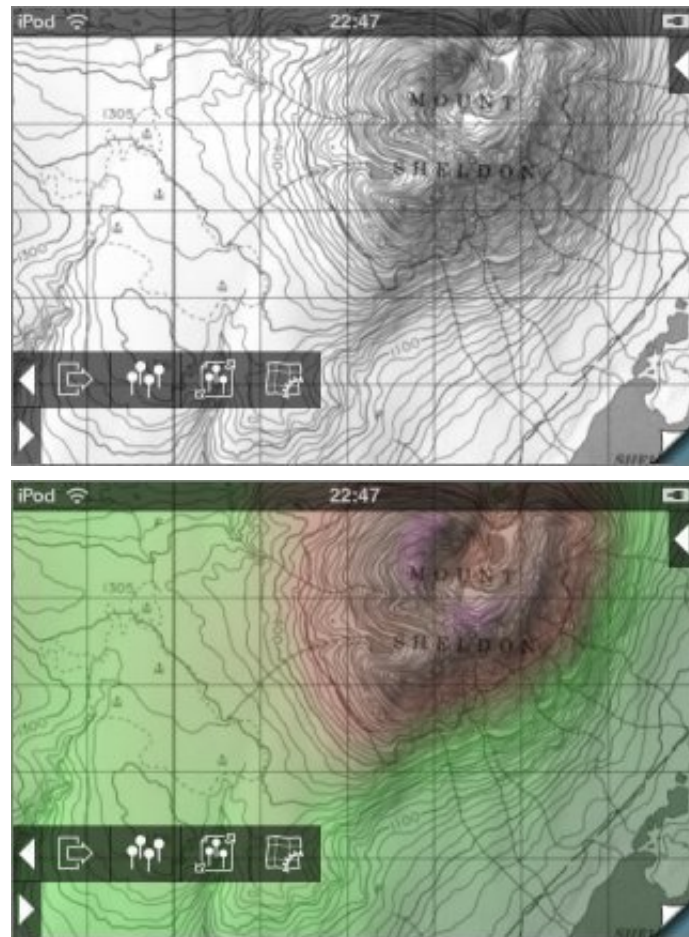
The height data used to compute the slope shading has a horizontal resolution of only about 300 feet, so the results are not very precise. Slope shading is most useful when you're viewing a map zoomed out so that the contour lines are not easily visible. The alignment of the shading data with the base map also seems to be poor in some areas, and there are occasional artifacts such as false grooves and ridges.

## Height Shading

Height shading is controlled by a switch on the map settings screen. When it's enabled, the base map is converted to monochrome and a color tint based on height is applied:



This is useful primarily when viewing a zoomed-out map, to get an overview of an area. It's also useful for those maps in Northern Canada that are published in monochrome:

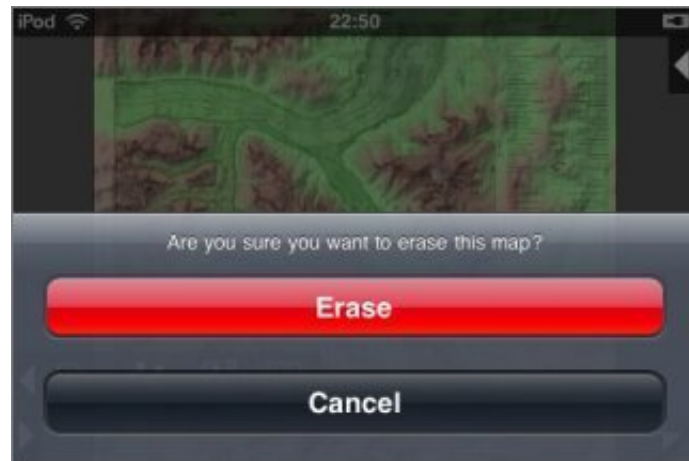


As with the slope shading, the resolution of the data is limited and it may take a moment for the effect to appear after you close the map settings screen. The spectrum used is adjusted depending on local minima and maxima, but in flat terrain it will still appear, well, flat.

The map settings screen also provides some buttons for managing the installed maps.

## Erasing Maps

To erase a map, touch the red "Erase" button. You'll be prompted for confirmation. If you're viewing a mosaic, it will offer to erase **all** of the maps in the mosaic.



## Upgrading and Downgrading

If you installed the low-res version of a map you can upgrade to the high-res version by touching the "Upgrade" button on the map settings screen. You can also downgrade to low-res if you need to free some space on your device. If you're viewing a mosaic, the app will offer to upgrade or downgrade all of the maps in the mosaic:



The upgrade/downgrade button also shows the amount of space currently taken up by the map (or maps).


## Checking for New Versions

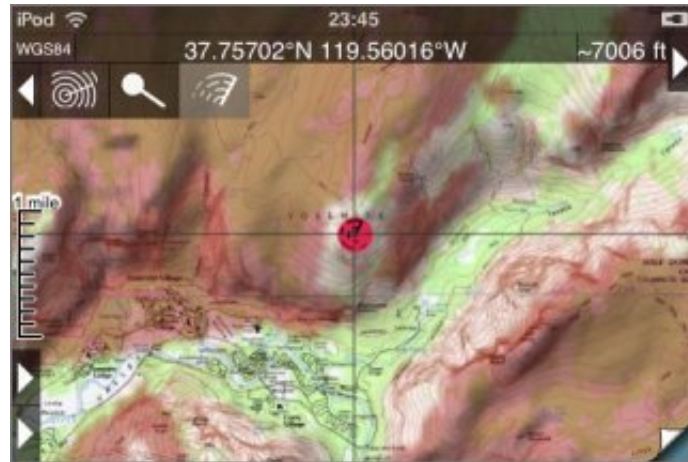
From time to time we may make new versions of maps available on the server. Normally this will be announced on this site's news page. You can check to see if a new version of a map is available, and install it if it is available, by touching the "Check" button on the map settings screen.



Beware, however, that this function will sometimes be subject to false positives: it may report that a new version is available and spend time downloading it when it is not in fact newer than what you currently have. This is most likely to occur if your initial download required the additional installation step. In this case, the replacement version is likely to look identical to your previous version but will consume less storage space.


## Visibility Mode

 Visibility mode uses the app's terrain data to compute what should be visible from a particular viewpoint. Simply place the crosshairs over the viewpoint and touch the Visibility button; the app will paint over the map with the hidden areas in red:



This is of course limited by the resolution of the data. In particular, note that to avoid errors in the data near the viewpoint (which would have a more substantial impact on the results than errors further away), the app computes the view from 30m above ground level and ignores all obstacles within about 400m of the viewpoint.

## Waypoint Files

 Topo Maps is able to show waypoints from files that you have created with other programs or downloaded from web sites. This is managed from the Waypoint Files screen, which is accessed by touching the button showing a group of pins in a box:



The first step is to get the files into the app, and there are several ways of doing this.

### Importing files from Safari, Email attachments, and other apps

Since version 1.12 of the app, it is possible to open files directly from Safari and other apps. Topo Maps will offer to open GPX, KML and ZIP files:



When you choose "Open in Topo Maps", Topo Maps will open and display a message like this:



If you now visit the Waypoint Files screen, the new file will be shown:



Note that in many cases web servers are not configured correctly and GPX and KML files will display as garbage within Safari, rather than offering the "Open In" screen. It is possible to work around this by using a different web browser that has additional features for downloading files, such as "MyMedia - Download Manager". Or you can use Topo Map's built-in web browser, as described below.

You can use a similar process to import files from email attachments and from other apps such as DropBox.

## Downloading using the built-in web browser

*Note that this process is now somewhat redundant as you can open files directly from Safari, as described above.*

It is possible to download waypoint files from web sites directly into the app by touching the Download button at the bottom of the Waypoint Files screen. When this button is touched a web browser screen is displayed; you can enter the address of a web site or an expression to search for:



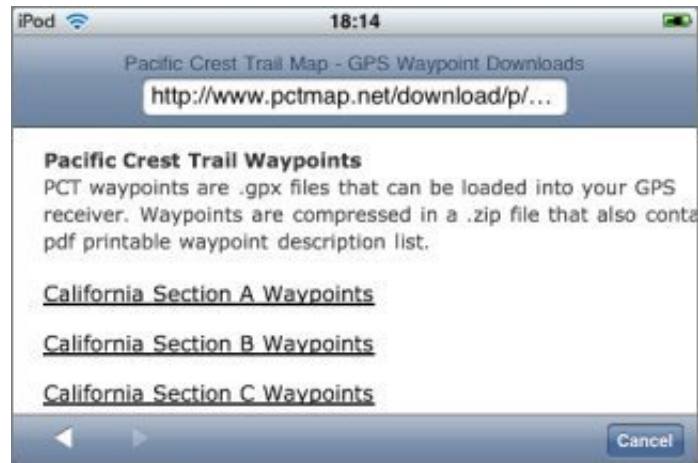
You can also enter just "g" to go directly to Google.

When you touch a link that Topo Maps recognizes as a waypoint file, it will be downloaded and shown on the Waypoint Files page:

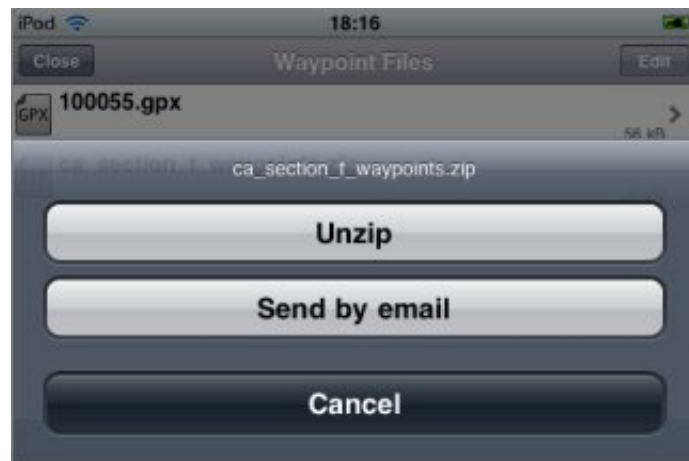


## ZIP files

You can also download ZIP files, such as these from [www.pctmap.net](http://www.pctmap.net):



You can unzip a ZIP file after downloading by touching its entry on the Waypoint Files screen:



## Viewing Waypoint File Contents

To view the contents of a waypoint file, simply touch its name in the Waypoint Files screen. Large files make take a few seconds to open. You'll see a section containing information about the file:





Below that, the waypoints are listed:



Below the waypoints, any tracks that the file contains are shown:



Each row shows the waypoint's name and either its co-ordinates or distance and bearing from the center of the current map screen (which may or may not be your current location). As with the search and waypoints screens, if you touch the display you can change between co-ordinates and distance and bearing, and change the units used in the display:



Touching a waypoint name will take you to that location on the map.

*If you have trouble opening a waypoint file, e.g. if the app crashes or does not show the expected content, please get in touch. We have tried this functionality with files from a number of sources, but bugs could still remain.*

## File Waypoints on Maps

At the bottom right of each waypoint file's screen, a switch enables you to turn on display of the file's waypoints on the map. To the right of the switch, the symbol that will be used for the file's waypoints is shown. When the switch is on you can touch this symbol to change it:



The waypoints are then shown on the map:



Note that to distinguish file waypoints from normal waypoints entered on the device, file waypoints have a pin that is gray/silver rather than yellow/gold. The bubble color is also different. Touching the bubble of a file waypoint will display the waypoint file's screen.

When a waypoint file has been turned on for display on the map, the icon that you choose is also shown on the Waypoint Files screen:



## Searching

File waypoints are included in the search results, but only when they are switched on for map display.

## Support for Waypoints vs. Tracks

Most conventional GPS devices are capable of recording both waypoints and tracks. Waypoints are distinct points that the user stores explicitly, e.g. by pressing a button, normally with names. Tracks are a whole series of points, normally stored automatically without individual names.

The current version of Topo Maps has proper support only for waypoints. If a file contains tracks these will be shown in its Waypoint Files screen and you can go to a point on the track by touching that point in the listing; however, this is the limit of the support for tracks. More complete support for tracks, i.e. displaying and recording them, is planned for a future version of the app.

## Transferring files from your computer

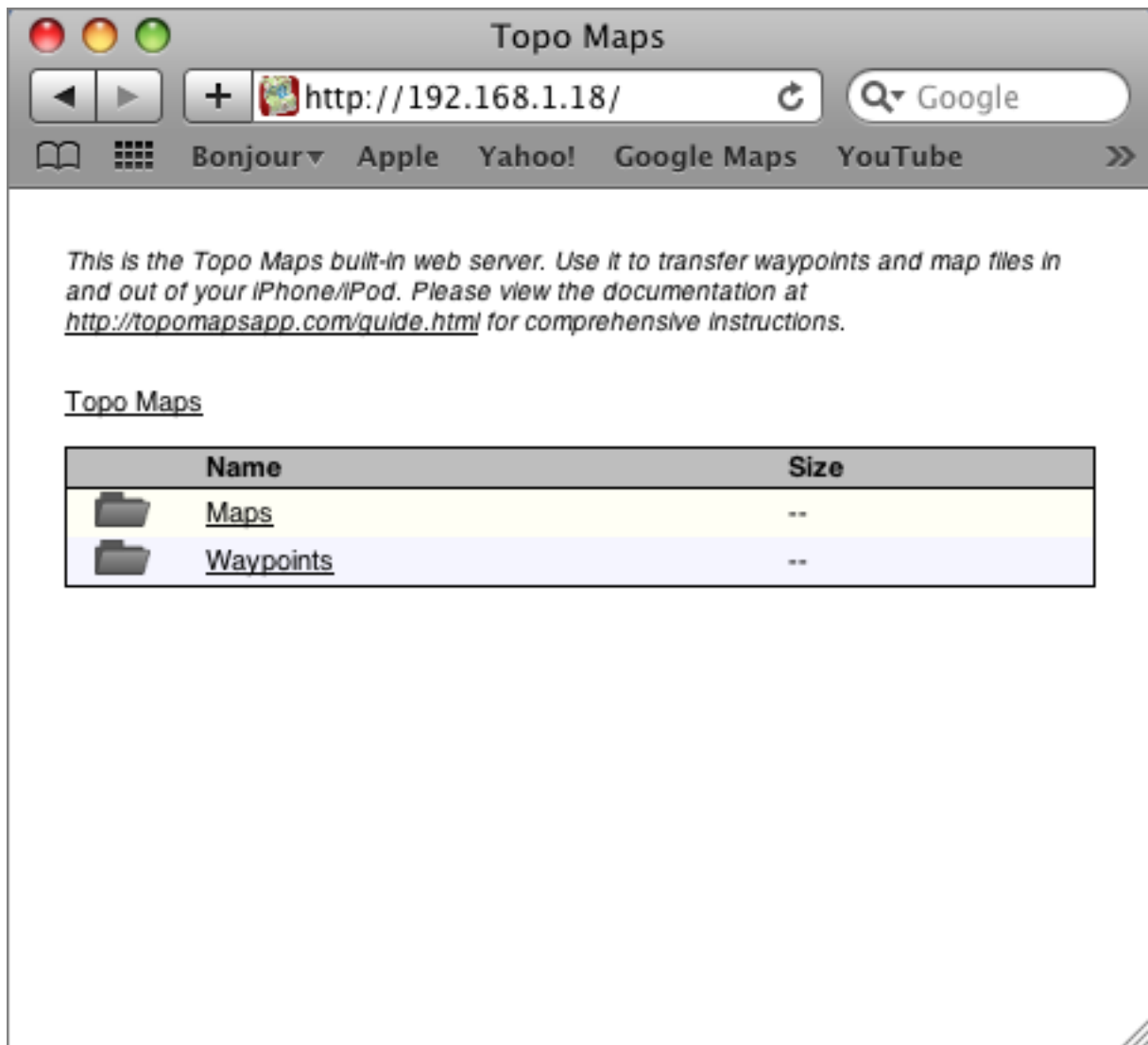
It's also possible to transfer waypoint files from your computer using a web browser. *Again, this process is now somewhat redundant as you can open files directly from email attachments, dropbox and so on, as described above.*

For this to work, your iPhone or iPad must be connected to the same local network as your computer and that network must not be set up to block this sort of communication between devices. Many public or semi-public local networks (e.g. internet cafe and workplace networks) are configured to block communication between local devices for security reasons. Regular home WiFi networks are the most likely to work. If you have been unable to use computer-to-device communication in other apps (e.g. the many "File transfer" or "WiFi Disk" apps) then it is not likely to work in Topo Maps either.

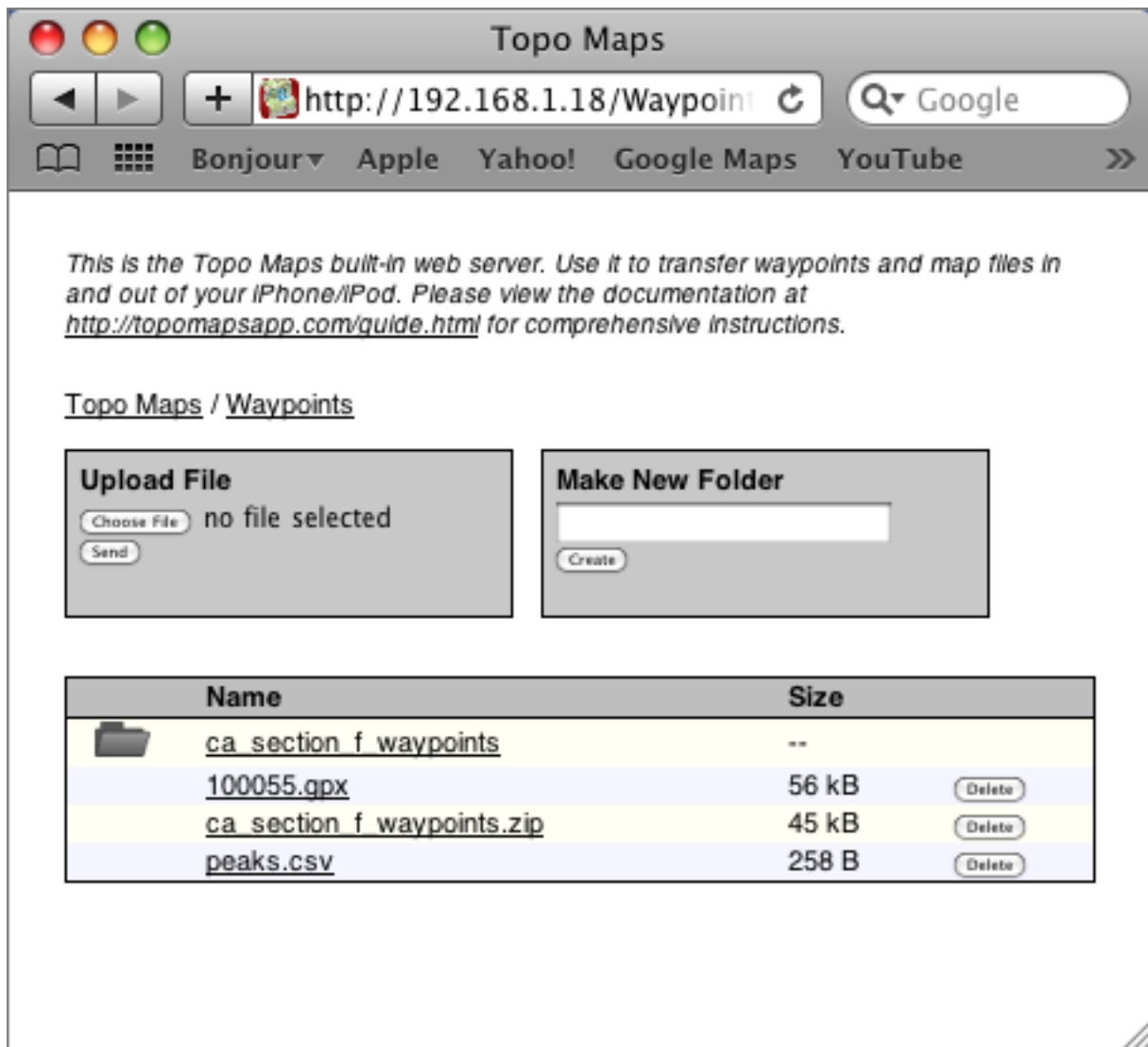
To start, in Topo Maps go to the Waypoint Files screen and touch the "Server" button at the bottom of the screen:



The app is now running a web server from inside the device. On your computer, enter one of the addresses shown into your web browser's address bar:



From this page, navigate to the Waypoints folder. The contents listed will match those shown on the app's Waypoint Files screen:



To transfer a file from your computer, use the "Upload File" box; the exact appearance will depend on which web browser you use. After sending the file it will be shown in the file listing.

Having transferred the file, close your web browser window and touch the "Done" button on the app. You will now see your file included on the waypoint files screen.

Note that this web server does not run in the background if you quit the app - the app must remain running in the foreground while you use this feature.

## Supported File Formats

Topo Maps understands the following file formats:

- GPX format. This is the recommended format for most applications.



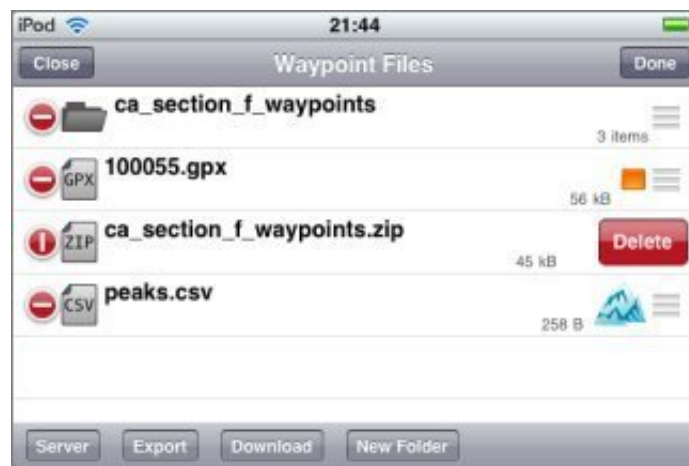
- KML format. Support for this format is not quite as complete as for GPX format.
- CSV format. This is intended for users who wish to transfer waypoints to and from their own spreadsheets and databases, as described here.

KMZ format is not directly supported, but it can be used as follows:

1. Transfer the KMZ file into the app using the web server.
2. Rename it to end ".zip" rather than ".kml".
3. Unzip it.
4. You should find a KML file among the unzipped files. Open this.

## Managing Files

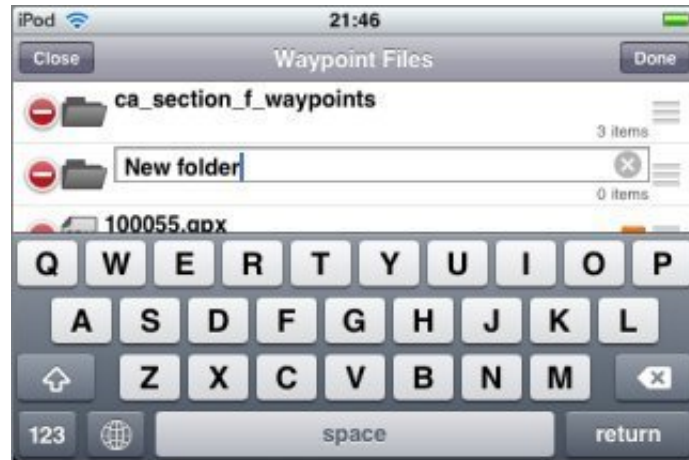
To erase files, first touch the Edit button at the top right of the screen and then touch the red button to the left of the file to be erased:



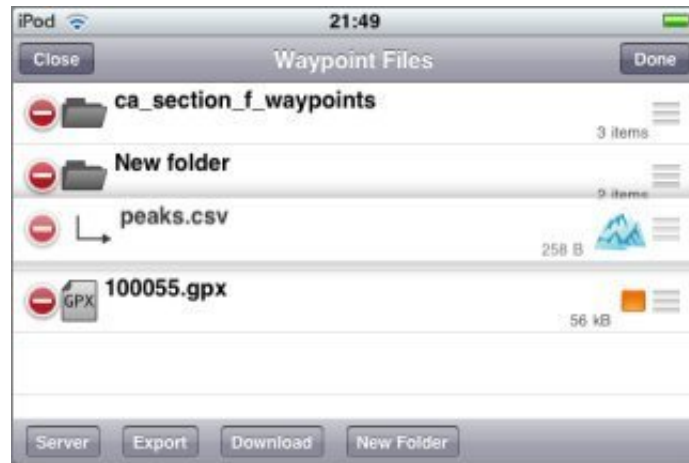
To rename files, touch the Edit button and then touch the file's name:



To create folders, touch the "New Folder" button at the bottom of the screen. To give the folder a name, rename it as above:



You can move files between folders. *Note that this feature should be considered experimental.* After touching Edit, drag files or folders by the re-order symbol at the right of the row to below the folder to which you wish to move them:



To move files or folders up to parent folders, drag them to the top of the screen (except in the top-most folder):



*(As shown above, you may sometimes need to create dummy folders so that these move operations work without ambiguity - this is why the feature is experimental.)*

You can also view some files that are not waypoint files. For example, the ZIP file downloaded above contained a PDF file as well as a GPX file, and this can be viewed by touching it:

California Section F Waypoints

Way 58	Way 58 - mi 585.5	3820 ft
WN581	Golden Oaks Spring - mi 585	5489 ft
Waypoint 581	Hemp Adams Pass - mi 596.5	5514 ft
WN582	Baker Bend Spring - mi 602	6337 ft
WN583	Swallow Canyon Road - mi 602.5	6579 ft
WN584	Cottonwood Creek - mi 604	6434 ft
WN585	Concrete dam and spring - mi 605.5	6754 ft
WN587	Lander's Creek - mi 607	6338 ft
WN588	Pacific Mountain Road, 3rd crossing - mi 608	6218 ft
WN589	Lander's Camp, spring, 6th Lark, 2/30 mile N of PCT - mi 608	6248 ft
WN591	Pacific Mountain Road, 2nd crossing at Harris Grade - mi 612	6608 ft
WN592	Barro Valley Road, paved N of PCT, unpaved S of PCT - mi 616	6947 ft
WN593	Willow Spring, 1.8 miles NW of PCT - mi 622	6548 ft
WN594	Bird Spring Pass - mi 631	5378 ft
WN595	Twelve Socket Spring, 1/20 mile NW of PCT - mi 636	6348 ft
WN596	Moham Spring, 2/30 mile E of PCT - mi 648	6704 ft
WN597	Walker Pass Contingent - mi 651.5	5048 ft
Way 578	Highway 178 - mi 652	5270 ft
PCB652	Donkey Post Office, 1/2 mile W of PCT - mi 652	2763 ft

Also included are waypoints every half mile along the Pacific Crest Trail.

## Sharing Files

You can share waypoint files by email or open them in other apps by touching the share button at the bottom left of the file's screen:



"Open in ..." will show a list of any other apps that you have installed that may be able to view the file.



If you choose "Mail", a regular email composition window will be shown with the file attached:



## Merging waypoints into the app

The waypoint file screen also has a button to merge the contents of the file into the app's locally-added waypoints screen. **You normally don't want to do this.** Waypoints from files can be viewed without merging them. It is used primarily when restoring a backup of locally-added waypoints that you had exported. **Merging cannot be undone.** If you are unsure do not use this feature!

## Waypoint Export

There are a couple of reasons why you might want to export waypoints from the app. Firstly you may wish to transfer waypoints to another app or program, or to a website, for display. Secondly you may want to save a backup copy of your waypoints for safe keeping (and *doing so is highly recommended*). In either case, the process is the same: you first export the waypoints into a file within the app, and then transfer that file out of the app.

Note that the waypoints that are exported are the manually-entered waypoints. Waypoints from waypoint files are not exported by this feature.

### Exporting

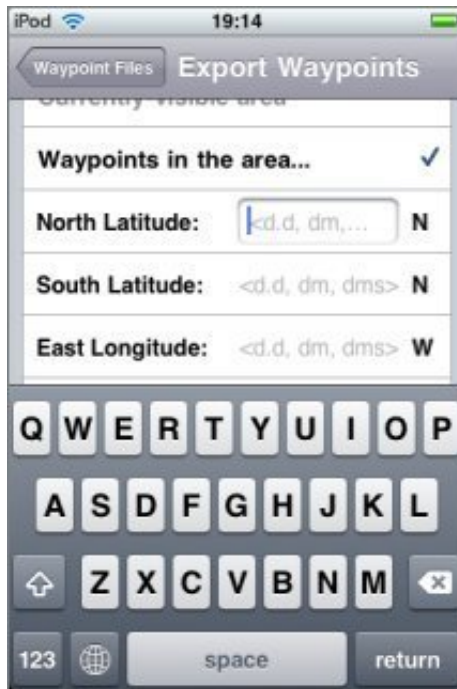
From the Waypoint Files screen, touch the Export button at the bottom of the screen. The Waypoint Export screen is then shown:



You can export either:

- All waypoints everywhere.
- The waypoints visible on the map before you came to this screen.
- Waypoints in a rectangle that you describe by giving latitude and longitude for the edges:





You must also enter a filename and choose a file format. KML format is appropriate if you want to use the file with Google Earth. CSV format is appropriate if you want to use the waypoints in a spreadsheet, database or other program. For all other purposes, including for backups, GPX format is recommended.

Note: you must touch the return key on the keyboard after entering the filename before continuing.

Having specified all the required parameters, touch "Export Waypoints...". You will be returned to the Waypoint Files screen where the new file will be visible. If you touch the filename its contents will be displayed.

## Waypoint symbol codes

The codes used in exported GPX and CSV files corresponding to the different waypoint icons are shown here. Note that these codes may be subject to change in future versions of the app.

## Transferring Files

There are various ways to transfer files out of the app. You can send them by email; to do this, view the file and touch the button at the bottom left of the screen. The same button will allow you to open the file in another app, such as DropBox. Or, you can transfer them via your computer's web browser, as described on this page.

## Restoring Backups

If you need to restore from a waypoint backup:

1. Transfer the file into the app, as with any other waypoint file.
2. View the file.
3. Touch the "Merge" button at the bottom left of the screen.

**Important:** do not use the "Merge waypoints into app" feature except for restoring waypoint backups. It is not necessary to "merge" waypoint files that you simply wish to view; just turn on display using the switch at the bottom right of the screen. It is not possible to undo a merge operation.

## Using CSV Files

CSV format is intended for users who wish to transfer waypoints between Topo Maps and their own spreadsheets, databases and other programs. For example, here is a spreadsheet containing some of the highest peaks in Alaska:

	A	B	C	D	E
1	RANK	NAME	HEIGHT	LATITUDE	LONGITUDE
2	1	Mount McKinley (Denali)	20320	63.069	-151.0063
3	2	Mount Saint Elias	18008	60.2927	-140.9307
4	3	Mount Foraker	17400	62.9605	-151.3992
5	4	Mount Bona	16550	61.3845	-141.7529
6	5	Mount Blackburn	16390	61.7305	-143.4031

All spreadsheet programs should be able to save in CSV format; the resulting file will look like this if viewed using a text editor:

```
RANK,NAME,HEIGHT,LATITUDE, LONGITUDE
1,"Mount McKinley (Denali)",20320,63.069,-151.0063
2,"Mount Saint Elias",18008,60.2927,-140.9307
3,"Mount Foraker",17400,62.9605,-151.3992
4,"Mount Bona",16550,61.3845,-141.7529
5,"Mount Blackburn",16390,61.7305,-143.4031
```

### Format Details

Topo Maps expects the first row of the file to contain column names. It will ignore any columns whose names it does not recognize. The recognized names are:

#### NAME

The name of the waypoint. This column must be present.

#### LAT or LATITUDE

Latitude, which can be either in decimal degrees, degrees and decimal minutes, or degrees minutes and seconds.

#### LNG or LONGITUDE

Longitude; same formats as latitude. Note that western-hemisphere longitudes must be negative. You can also put a compass-point letter after the value.

**UTM**

UTM co-ordinates may be given instead of latitude and longitude. You should not specify both.

**MGRS**

MGRS co-ordinates, as another alternative way of specifying the location.

**DATUM**

The map datum, either WGS84, NAD83 (which is the same as WGS84) or NAD27. If not specified, WGS84 is assumed.

**SYM or SYMBOL**

The code for symbol to use for the waypoint, if it is merged into the app's built-in waypoints.

**Transferring files**

These file can be transferred into Topo Maps using any of the normal methods for waypoint files, i.e. by downloading from a web site or by sending it from your computer's web browser. (If Topo Maps is not offered as an "Open In" option for a .csv file, try zipping it.)

It is also possible to export CSV files out of the app.

**Viewing files**

Once loaded the file can be viewed like any other waypoint file:



If you turn on display and choose a symbol at the bottom right of the file's screen, the waypoints will also be shown on the maps:



They will also appear in the search results.

*Do please let us know if you have difficulty importing CSV files.*

## Map Import/Export

### What this feature Isn't

This feature is *not* a method for you to load your own map data into Topo Maps, nor to extract files from the app to use in other programs. The files that Topo Maps uses are in a format that's not useful to other applications.

### So....

The purpose of map import/export is to make it possible to transfer maps between multiple devices in situations where installing the maps from the internet is impractical for some reason, for example if no fast internet connection is available. It also makes it possible to remove maps from the device to free space for other purposes and to re-load them later.

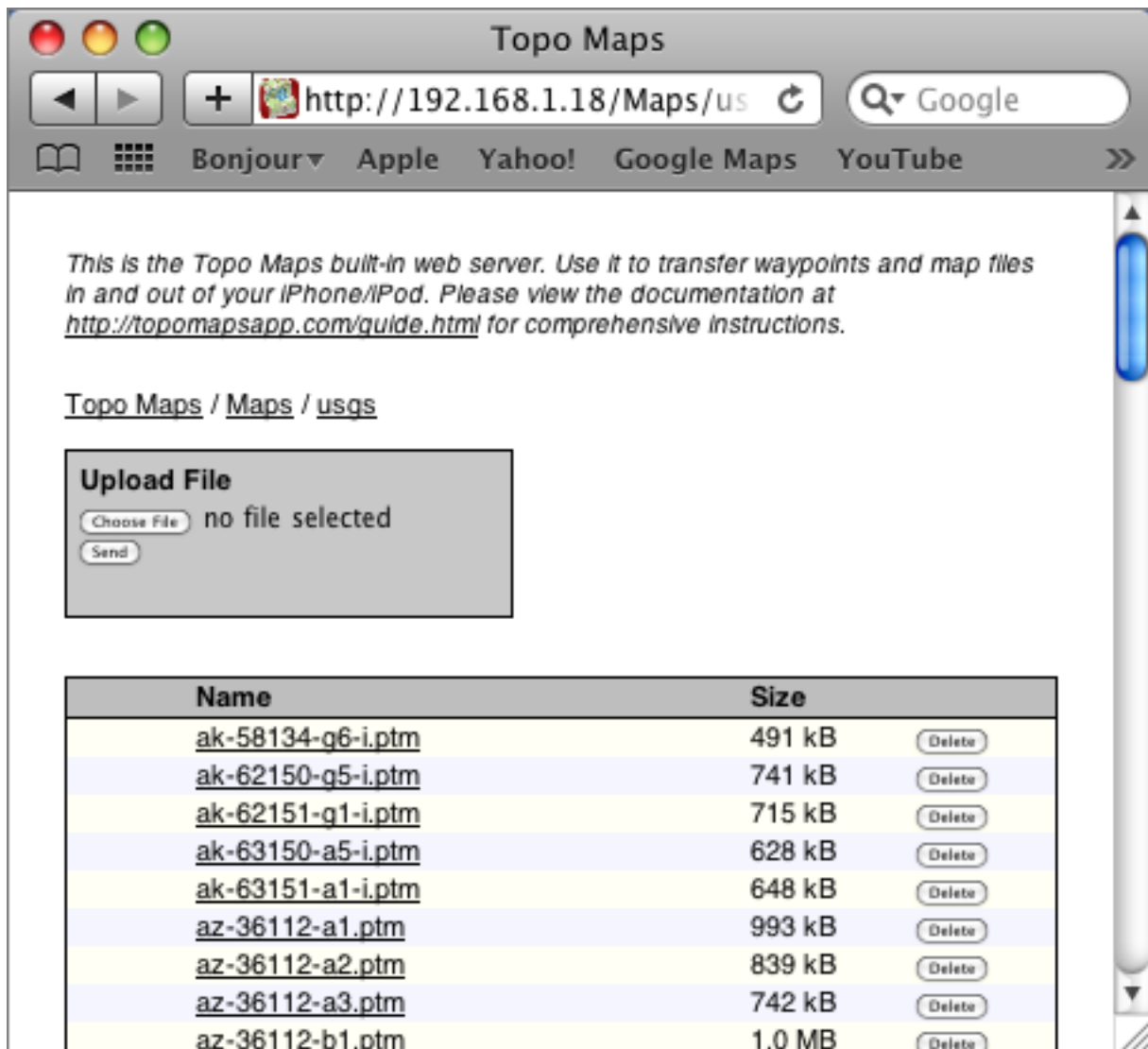
For most users, it will normally be easier to install maps in the conventional way.

*This feature is not often used and should be considered somewhat experimental.*

### Exporting Maps

To export maps, run the app's built-in web server and navigate to the Maps folder from your computer's web browser. There are sub-folders for U.S. and Canadian maps:

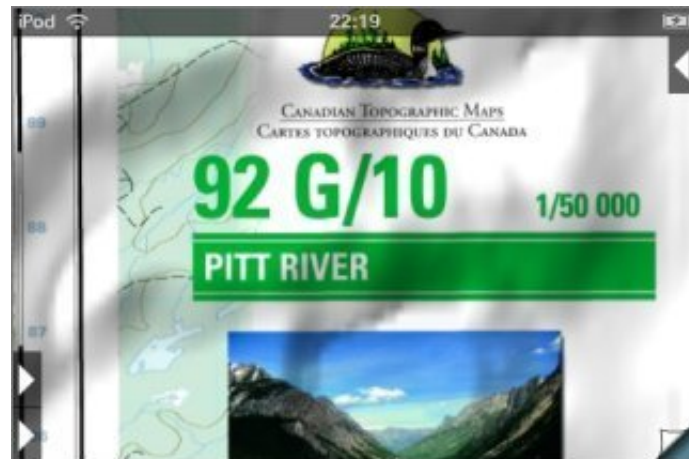




For U.S. maps, the filename starts with the state abbreviation which is followed by the latitude and longitude of the degree square, and finally a letter-number indicating the quad within the square. This is a standard USGS numbering scheme; you can normally find the codes in the borders of the maps:



For Canadian maps, the filename is a number-letter-number pattern which is a Natural Resources Canada standard, and is normally shown on the cover of the map, perhaps with more punctuation:



To copy a file to your computer, click on the map name. If appropriate you can then erase it from the app by clicking on the Delete button.

## Importing Maps

To import maps, run the web server and navigate to the appropriate maps folder. Use the Upload File box to copy the map file from your computer to the app.

**It is important that you do not change the name of the map file on your computer between exporting and importing.**

## After Transferring

After transferring, close your web browser window and touch the Done button on the app.

If you made any changes to the maps in the app, i.e. erasing or importing, the app will ask you to restart it:



Simply press the home button and restart the app. It may take a few seconds longer to start up than normal as it processes the changes.

## Settings Switches

There are three switches in the device's main settings app for Topo Maps:



### Safe Mode

When Topo Maps starts, it tries to resume with the same view that you were viewing before you last quit. A potential danger with this is that if the app crashes for some reason, when you restart it it may immediately encounter the same problem and crash again.

Safe Mode is designed to avoid this potential problem. If it seems that the app has got into a bad state, go to your device's main settings app, choose Topo Maps, and turn on Safe Mode; the next time the app starts it will not try to restore its previous state; instead it will show a default view of the U.S. index map.

Note that Safe Mode does not erase your maps or waypoints or anything else of that sort.

To date, no bugs have been reported that need Safe Mode for recovery. The feature has been added purely as a precaution.

## Backup Maps

The "Backup Maps" switch determines what happens when you backup your device. If it is ON, your maps are included in backups; if it is OFF, maps are not included. Your waypoints and waypoint files are always backed up.

*Note that you must run the app at least once after changing the state of the switch for the change to become effective.*

If you use only iTunes to backup to your computer you may prefer to turn the switch ON, since these backups are relatively fast. If you use iCloud backup, however, you will probably prefer to turn it OFF, since backing up maps over the internet is likely to be slow and to use much of your iCloud storage allowance.

Note that if you use iCloud backup, you must also turn it on individually for this app in the iCloud settings.

If your maps are not included in your backups and you need to restore your device, you will need to re-download all of your maps.

## Use Google Maps

This switch determines whether Apple Maps or Google Maps are used for the Go To Apps button.