Trk2Rt User's Guide

Introduction

Track to Route (Trk2Rt) is a road travel planning tool which converts tracks to routes and routes to tracks in support of Satellite (aka GPS) Navigation. It offers several additional features as one part of an overall route planning workflow.

Features

Features include:

- Converting a planned route from Rever[i] or Google[1] to a Garmin[1] style route, including all original "waypoints" or "destinations" with their original names and locations.
- Converting a Garmin style calculated route to a track and waypoints.
- Enhancing a planned route to:
  - better follow an existing track, and
  - produce a more consistent route on a variety of navigation devices.
- Creating a reliable, sharable routing package compatible with almost any routing software or navigation device.
- Preserving names and positions when converting via points to shaping points and vice-versa.
- Optionally:
  - Prefixing and numbering route points.
  - Preserving, globally replacing, or individually editing original point, route and track names.
  - Splitting a route into multiple routes.

All available conversions, which are detailed in the table below, are automatically supported.

Free Software

Track to Route is free software shared under the GPL[1] version 3 license. Prebuilt executables of Trk2Rt.exe, which run as Windows[1] desktop applications, or from a Windows command line, are available to download from GitHub[1]. Links are included in the Appendix to this document. Source code, license, documentation and additional information are also available there.

Track to Route is available for use at the user's own risk. Careful review of exported results is strongly recommended to assure that the user's desired results have been achieved.

Table of Contents

Available Conversions

Import File		Available Export GPX File Content				Purpose
Type	**Content**	**Enhanced Route**	**Common Route**	**Track**	**Waypoints**	
gpx	Garmin calculated route (with or without track or waypoints)	yes		yes	yes	Create a reliably sharable package from a Garmin style route
	common route & track (with or without waypoints)	yes		yes	yes	E.g. import from MRA[1]: Enhance a common route with additional shaping points so that the route better follows the track.
	common route (with or without waypoints)		yes		yes	Limited - convert route points to waypoints.
	track & waypoints	yes		yes	yes	Better conversion from Rever or similar to Garmin.
	track	yes		yes		Limited - similar to most other track to route conversions although with improved control of the conversion.
	waypoints		yes		yes	Limited.
kml	linestring coordinates & placemark points	yes		yes	yes	Better conversion from Google or similar to Garmin or other route planning software or navigation device.
	linestring coordinates	yes		yes		Simple kml to gpx conversion
	placemark points		yes		yes	Simple kml to gpx conversion

A Note on Terminology

Some terms used throughout the Satellite Navigation (GPS) community have multiple meanings, leading to confusion. In the interest of clarity, this document, and the Trk2Rt software, use terms in the context of Garmin's extensions to the GPS eXchange (GPX) format.
Most significant is that Waypoints are standalone saved locations (a.k.a. favorites); they are never part of a route. Routes are made up of route points, which may be either of two sub-types, via or shaping. Although waypoints may be used to specify route points, of either sub-type, routes remain made up of route points, not waypoints.
Tracks are made up of track points.
(Adding to the confusion, Garmin's Basecamp[1] sometimes refers to via points as points that alert on arrival and shaping points as points that won't alert on arrival.)

Acknowledgements

Thank you to Frank Bijnen, member of the zumo user forum[1] and author of the Trip Manager[1] software (links below), for an exchange of ideas which contributed to several enhancements included in version 3 of Trk2Rt, as well as for some testing of a pre-release version.

Release Notes

Version 2.0 October 2023	First shared version.
Version 2.1 May 2024	Fixed point numbering error in exported gpx file which occurred under certain limited conditions. Fixed screen refresh issue which occurred under certain limited conditions. Clarified input parameter labels. Repositioned some input parameters for improved organization and clarity.
Version 2.2 May 2025	Removed informational dialog box at startup. Added Point Numbering Style "None". Postfix number added to additional shaping points so names are unique when Point Numbering Style "None" is selected. Added ':' at end of prefix / point numbering to support prefix / point numbering removal and / or replacement by the new Route Post Processor (RtPP).
Version 3.0 December 2025	Added route to track conversion, options to export gpx waypoints, track, and / or route, ability to directly convert a kml file to a gpx file, ability to exclude individual route points (original waypoints) from route, display of distance between each waypoint and its closest track point, display of number of track points / road changes between each pair of primary route points and the number of those to be converted to additional shaping points. Changed selection of additional shaping points from fixed number to percentage. Improved display and terminology clarity. Improved import file parsing. Incorporated point renumbering, eliminating the need for a post processor. Significant internal code structure improvements.

Version 3.1 January 2026	Minimize placing additional shaping points at intersections. Add default file extensions in import file dialog. Handle “Folder” when parsing kml files. Support import of route with route point extensions without subclass. Add file save dialog For windowless command line use, add: - Export file path and name options. - Return codes to support caller warning and error handling Fix export info display when split to more than 3 routes. Minor internal code clarifications.

Usage Modes

Track to Route can be used in any of four ways depending on desired results and option complexity.

1. Simple Default Use provides quick and simple means to accomplish common tasks such as conversion from Rever or Google to Garmin and to share a Garmin style route with others who may use different software or devices. No configuration is required.
2. If simple use does not provide adequate results, Intermediate Use provides a small number of global configuration options which allow some customization of exported results.
3. Advanced Detailed Use offers detailed configuration options for each individual primary route point as well as several additional features including via <-> shaping point conversion, point name editing, point prefixing and numbering or renumbering, and route splitting.
4. Command Line Use provides an intermediate level of configuration while running in the background.

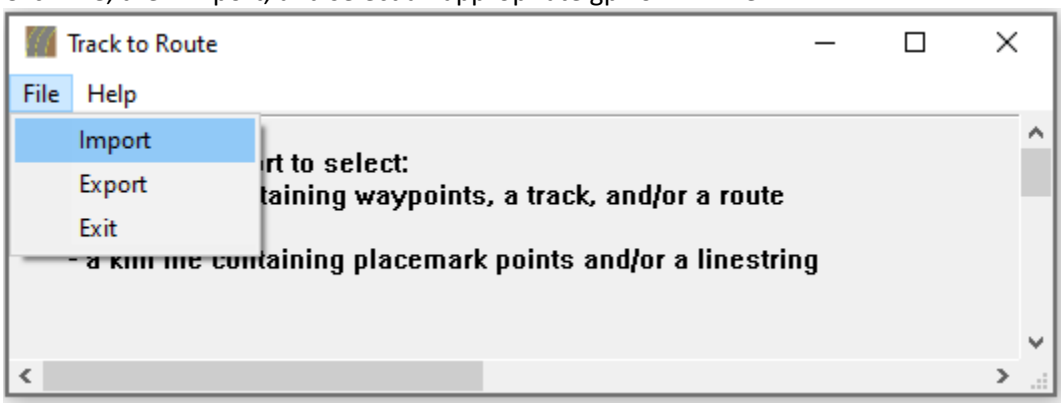
Simple Default Use

To:

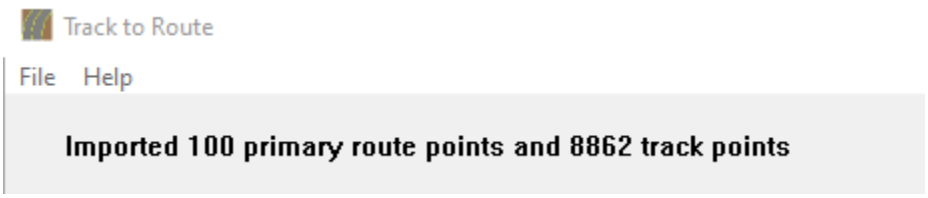
- convert a Rever or Google exported track to a route, or
- export a Garmin calculated route as an enhanced sharable route, track and waypoints, or
- enhance an MRA or other exported route and track so that the route better follows the track when using a variety of route planning software and navigation devices,

simply:

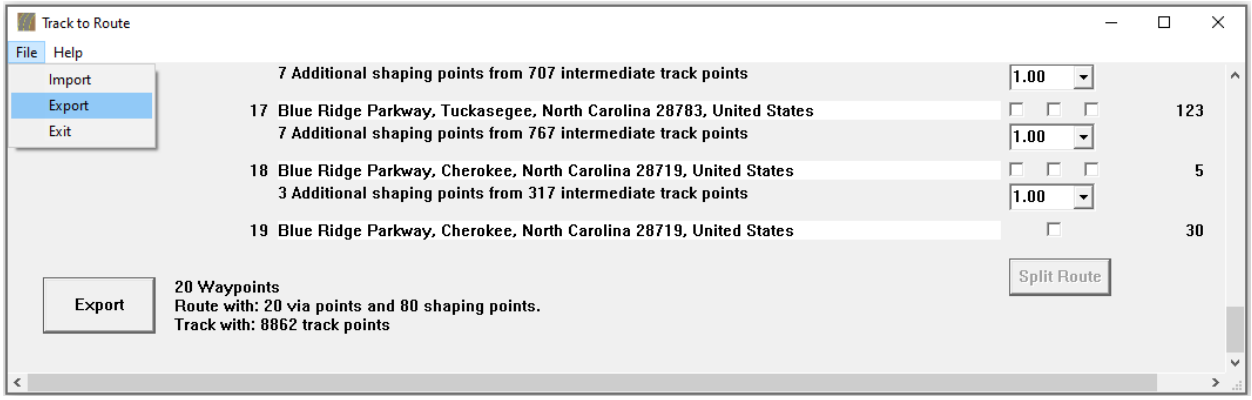
1. Click File, then Import, and select an appropriate gpx or kml file.



A summary of imported points is provided at the top of the display.



2. Click the Export button.



Simple Default Behavior

The track or route name is used as the exported route name.

Waypoints, placemark points or route points are converted to via (or shaping) points with their names used as via (or shaping) point names.

Point locations may be adjusted **slightly** in the interest of attempting to re-position off-road route points onto roads.

Between each pair of original points, 1% of original track points or 10% of points indicating road changes, approximately equally spaced, will be added to an exported route as additional shaping points.

All exported via and shaping points will be numbered sequentially, starting at zero.

Original track points converted to additional shaping points will be named using the route name, with track point number added to make each additional point's name unique.

The exported gpx file will be written to a directory (aka folder) named T2R\ which will be located directly below the imported file's location. The directory will be created if it does not already exist. The exported file will be named similar to the imported file, with "_T2R" appended to the file name. The original import file is always preserved, unchanged.
Any existing file with the same export file name and path will be overwritten without warning.

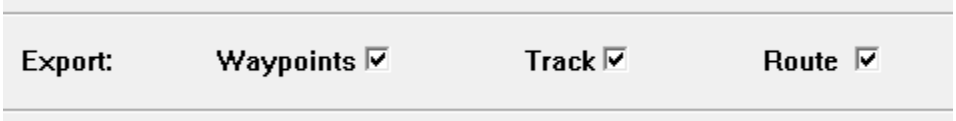
Intermediate Use

The above default behavior is configurable at a global level, providing a degree customization when default parameters do not provide desired results. Any parameter displayed with a white background may be changed or edited as desired.

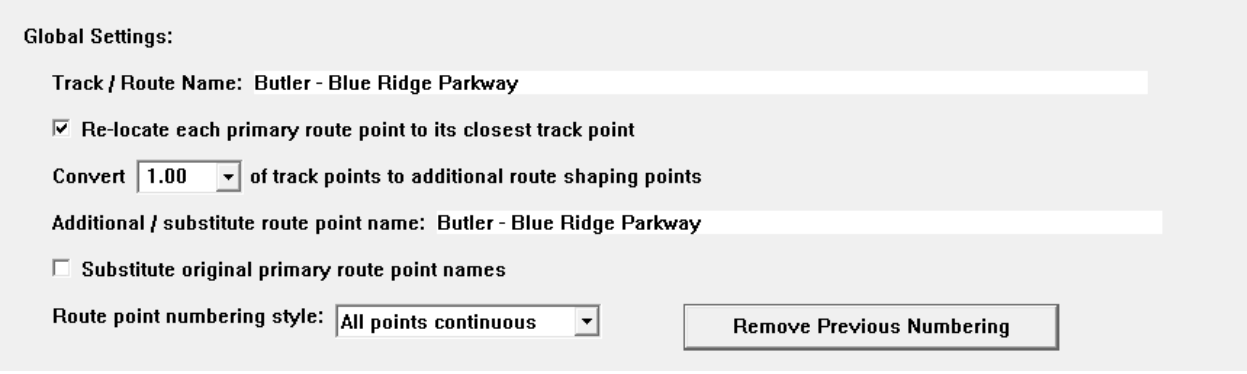
Export Content Options

By default, Trk2Rt will export whatever is possible based on the contents of the import file. (See the Available Conversions table above.) Export content options are provided to deselect any undesired exports.

Note that, based on import file content, any unavailable export will be unchecked automatically and cannot be selected.



Global Settings



Important Note: Changes made to global parameters will overwrite related detailed parameter setting discussed in the Advanced Detailed Use section below. Any / all changes to global parameters should be made before making any individual point adjustments further below.

"Track / Route Name" is the name given to any exported track and/or route. It is initially set to the name, if any, of the imported route or track. It may be edited as desired. If the route is split (see Advanced Detailed Use below), the name is further appended to indicate each part of the split route.

"Re-locate each primary route point to its closest track point" is selected by default but may be unchecked if desired. If waypoints and a track are imported, each waypoint is relocated to the location of its closest tracking point. If unchecked, route points derived from imported waypoints remain at the original waypoint locations. The detailed point display discussed further below displays each primary route point's distance to its closest track point.

There is a tradeoff to be considered here. Relocating generally helps to locate exported route points directly on roads when the original points may be slightly off the road, however, it may also move some original route points into road intersections, which is undesirable. See "Avoid route points at intersections" in the "Tips and Troubleshooting" section of the Appendix.

"Convert _ % of track points or road change points to additional route shaping points" controls the number of additional shaping points added to an exported route. Adding additional shaping points to a route makes it more likely that an exported route will follow the original route or track when using a variety of route planners and/or navigation devices.

The % to convert may be selected from suggested values which are available by clicking the down arrow, or any value between 0 and 100% may be entered directly by clicking in the white box showing the current value. The above "Important Note" applies here. **Note also** that, depending on import content, higher percentage values can result in a very large number of shaping points in the exported route.

The detailed primary route point display discussed below shows the number of additional shaping points which will be exported following each primary route point. The export information, also discussed below, summarizes the total number of points to be exported, by type.

"Additional / substitute route point name" Track points and road change points typically do not have names included in an imported file. This parameter provides the base for naming any additional route points created from those points. It is initially set to the imported route or track name, if any. It may be edited as desired.

"Substitute original primary route point names" is unchecked by default. The original imported waypoint or route point names are used as default names for each individual primary route point to be exported. These are shown in the detailed display discussed below. If this global option is checked, those original imported point names are replaced with the above additional / substitute name. Toggling this checkbox will alternate the primary route point names between original imported names and the substitute name. The above "Important Note" applies, however.

"Route point numbering style" specifies whether, or how, exported route points are numbered. By default, all exported route points are numbered sequentially, beginning with zero. Optionally, via points can be numbered sequentially with any shaping points following each via point being sub-numbered, beginning at 1. "None" may be selected to eliminate all exported route point numbering. The table below illustrates the options.

	All Points Continuous	Via Points Continuous	None
First via point	000	000	
First shaping point	001	000.1	
Second shaping point	002	000.2	
Second via point	003	001	

Point numbering includes both primary route points and any additional shaping points.

"Remove Previous Numbering" Button: If the imported route contains route points which have previously been prefixed and/or numbered by Trk2Rt, then the option to remove that previous prefix and numbering becomes available. This allows points to be renumbered if the route has been altered outside of Trk2Rt. Specifically, this will remove any part of a primary route point name up to and including a colon followed by a space; that is ": ". There is no undo after removal, other than to re-import the original file. Trk2Rt will never change the import file.

Exporting

"Export" Button: As indicated in "Simple Default Use", clicking the Export button will export a gpx file to the default location with the default file name. The original import file is always preserved, unchanged.
Any existing file with the same export file name and path will be overwritten without warning.

File Export Menu Item: Selecting File, then Export from the menu bar will open a standard file save dialog. It is pre-populated with the default export file path and file name but any file location and name can be specified as usual.

Advanced Use and Additional Detail

Available Conversion Details

The table below provides additional details for the available conversions.

Import File		Available Export GPX File Content				Details
Type	**Content**	**Enhanced Route**	**Common Route**	**Track**	**Waypoints**	
gpx	Garmin calculated route (with or without track or waypoints)	yes		yes	yes	From a Garmin calculated route, create a reliably sharable package compatible with almost any route planning software or navigation device. Original route points remain as primary route points and are also available as independent waypoints. The complete set of route points and route point extensions are available as a track. A configurable % of road change points are included as additional route points, so that the exported route will better follow the original route on various devices.
	common route & track (with or without waypoints)	yes		yes	yes	Original route points remain as primary route points and are also available as independent waypoints. The imported common route (e.g. from MRA or similar) is enhanced by adding a configurable % of track points as additional shaping points so that the exported route better follows the original track on various devices.
	common route (with or without waypoints)		yes		yes	Convert original route points to waypoints.
	track & waypoints	yes		yes	yes	Better conversion from Rever, or similar, to a common route which can be imported to Garmin or other software and/or devices. Waypoints, in the order of their closest track points, become primary route points (via by default) and a configurable % of track points become additional shaping points in the export route.

	track	yes		yes		Similar to most other track to route conversions, however the % of track points to convert to shaping points is easily configured. First and last track points become via points.
	waypoints		yes		yes	Limited - Common route is built from the waypoints. Assumes the imported waypoints are in route order.
kml	linestring coordinates & placemark points	yes		yes	yes	Better conversion from Google or similar, to a common route which can be imported to Garmin or other software and/or devices. Placemark points become primary route points (via by default) and a configurable % of linestring coordinates become additional shaping points in the route available for export. In addition, linestring coordinates are available for export as a track and placemark points are available as independent waypoints.
	linestring coordinates	yes		yes		Direct kml linestring to gpx track conversion.
	placemark points		yes		yes	Direct kml placemark point to gpx waypoint conversion.

Primary Route Point Detailed Settings

When an imported file contains information that supports exporting a route (see table above), the Primary Route Point Detail Settings section of the display provides details regarding each primary route point. This includes the number of additional shaping points which will follow in the exported route. Several detailed configuration options are available.

Important Note: As stated above, changes made to global parameters will overwrite the related detailed parameter settings discussed here. Any / all changes to global parameters should be made before making any detailed individual point settings.

Primary Route Points vs Additional Points

Routes are flexible, but variable, because they are formed from a small number of user specified points. Tracks are in-flexible, but stable, because they are made up of a very large number of points. Trk2Rt can automatically add a configurable [small] number of additional points to a traditional route, making it more stable without significantly sacrificing flexibility.

If Trk2Rt imports a file containing a route, then all of that route's via and shaping points become the primary route points of a route available for export. If no route is imported, but waypoints or placemark points are imported, then those points become the primary route points for the export route.

The import file may also contain additional points. These may be "hidden" route point extensions, if a Garmin style calculated route has been imported, or track points, if a track has been imported.

These additional points, if any, can be used to better define the route. There are often a large number of additional points available. Trk2Rt allows the user to configure the % of available additional points to be exported as additional shaping points. The % can be set globally and may be further adjusted individually following each primary route point.

Regardless of whether a track or calculated route was imported, the additional points always represent track points which fully define the imported route. If a Garmin style calculated route has been imported, then a specific, relatively small, subset of those track points will indicate road changes. That subset alone identifies all of the roads the route follows. For that reason, when available, a % of the road change points, rather than all track points, is made available for export as additional shaping points.

Exporting a small % of additional points is generally sufficient for most uses of the exported route. The route becomes more stable but only slightly less flexible. Recalculating the exported route using the navigation device or route planning software of choice, then comparing it with the track, will identify any differences. A slight increase in the % of additional shaping points exported will typically resolve any difference. Rather than adjusting globally, adjusting the % of additional points following the individual primary route points where any deviation occurs, will keep the total number of additional shaping points to a minimum. This maximizes route flexibility while providing the desired level of stability.

For the interested reader, the appendix provides a deeper explanation of the point types and their origins, as well as the flexibility – stability tradeoff.

The example below shows the detailed information and configuration options available for each route point to be exported. Each option is discussed in the text below.

Any field with a white background may be edited, selected, or checked / unchecked as desired.

Prefix

At the start of each route to be exported, a short prefix may be specified. If entered, the prefix will be added at the beginning of each individual route point name. The above example shows the day number of a multi-day trip added as a prefix. Any leading and trailing spaces will be included in the exported

point names. The prefix will also be carried over to any subsequent (split) route unless a new prefix is specified for that route.

Note: Trk2Rt imports only a single route and/or track (or linestring), specifically the first one of each in the import file. It can split an imported or generate route into multiple routes – see Route Splitting below.

Starting Number

By default, point numbering starts at zero. Similar to prefix, an alternate starting number may be specified for each route to be exported. Route points will be numbered sequentially, beginning with the specified value, subject to the global point numbering style selection. Numbering will carry over from one (split) route to the next unless a new value is provided for the split route(s).

Note that point numbering does include additional shaping points, if any.

The prefix and number of each individual primary route point is shown with a gray background. They can be edited per route but cannot be individually edited.

The detail display includes two lines for each primary route point, except the last point of each route. Since each route must begin and end with a via point, the last primary point in a route will always be a via point and cannot have any additional shaping points following it.

Line One:

Point Name

Unless overridden by the global substitute name as discussed above, each primary route point's name is set by default to the name of the corresponding original imported waypoint or route point. The name may be edited as desired. The above Important note applies here however.

Shaping or Via Point

The first and last point of any route must be via points. For all other points, a checkbox is available to specify via vs shaping point. A checked box indicates a shaping point. If the primary points were imported from a route, the checkbox is set based on the imported point's type. If the primary points were imported from waypoints or placemark points, they default to via points. In either case the point type may be changed as desired (except for the first and last points in a route).

Exclude Point

By default, all primary route points available from the import file are included in the export route. Points may be excluded by checking the middle "Exclude" checkbox. This will cause the point to immediately move to the excluded points list at the bottom of the display as shown above. Excluded points may be re-included by unchecking the box (until a route is split as discussed below). Excluding points does not significantly alter the route. Trk2Rt never performs any routing calculations. The purpose of this option is to exclude from the route any imported waypoint which happens to be in the import file, but it not a part of the route.

Route Splitting

The route to be exported may be split into multiple routes, with the following limitations:

- A route cannot be split at a shaping point since routes must begin and end with via points.
- A route cannot be split at its first or last point since a route must have at least two points.
- Trk2Rt cannot join routes. Once split, routes cannot be rejoined.
- Once a route is split, no points can be excluded or re-included.

Splitting a route is a two-step process. The right most of the 3 checkboxes of each primary route point allows the point to be selected as a location where the route is to be split. Multiple points can be selected, subject to the above limitations.
Step two is to click the "Split Route" button at lower right of the display. This will duplicate each selected primary route point so that each becomes the end of one route and the beginning of the next. The route will then be split at the selected location(s).

Distance to Closest Track Point

When an imported track is available but the primary route points are not derived directly from that track (see the available conversion details table above), the distance from each primary route point to its closest track point is shown. This information can be helpful with regard to the global Re-locate primary route point setting. Distance may be displayed in units of feet or meters.

Line Two:

Additional Points

The second line of each primary route point's display indicates the number of additional points available for export following that primary point, and the number of those currently selected as additional shaping points to be exported. The global value for the % of available points to be included may be adjusted individually for each primary route using the dropdown edit box at the right of each line. The above important note applies here.

Export Information

Just below the Primary Route Point Detailed display, and just right of the Export button, the display summarizes what will be exported, given the current configuration selections.

Export Button and Menu Option

Clicking the Export button, or selecting File, then Export from the menu bar, will cause a gpx file to be exported with the contents indicated by the export information.
Warning: Any previously exported file of the same name and path will be immediately overwritten.

The imported file is never changed or overwritten by Trk2Rt.

Exported File(s)

The complete path name(s) of any exported file(s) will be displayed below the export button. If the route has been split, each exported route, and any associated track and waypoints, is exported into its own file. Any subsequent configuration change, or import of a new file, will clear the exported file display.

Command Line Use

Trk2Rt can be executed from a command line to run either windowed, or, windowless in the background. For background operation, a limited set of configuration options is available.

The general command line form is:

Trk2Rt.exe <optional parameters> <import file name>

Each parameter, and the file name, must be separated by one or more spaces. Parameter names are case sensitive. Spaces within a parameter are not allowed. File names which include spaces must be enclosed in quotation marks. The file name must be last on the command line.

Entering the executable alone will start a normal windowed operation.

> Trk2Rt.exe

Entering the executable with only a file name will start normal windowed operation with the specified file being imported. For example:

> Trk2Rt.exe "Butler - Blue Ridge Parkway.gpx"

Entering the executable with any additional parameter(s) will result in execution in the background. To execute in the background with all default configuration options enter

> Trk2Rt.exe BG <import file name>

Or

> Trk2Rt.exe default <import file name>

Optional configuration parameters are:

- noRelocate
  See “Re-locate each primary route point to its closest track point” above.
- noMsgBox
  Prevents Tr2Rt from displaying warning or error messages via a dialog message box.
  This should be set only if the caller handles return codes.
  See Trk2Rt_RetCode.h in the GitHub repository (Link in the appendix).
- exportPercent=<floating point value>
  See “Convert __ % of track points or road change points to additional route shaping points” above. Note that there are no spaces within this entire parameter.
- stripPrev
  See “Remove Previous Numbering” Button: above
- NS_ALL or NS_VIA or NS_NONE
  See “Route point numbering style” above.
- exportPathname=<complete path and file name>
  or
  exportPath=<full export path>
  or
  exportSubdir=<sub-directory below import file directory>

  An export pathname, path, or sub-directory which includes space characters must be enclosed in quotation marks. A trailing slash should not be included. Note that there are no other spaces within this entire parameter.

Example:
> Trk2Rt.exe exportSubdir=”T2R exp” exportPercent=2.5 NS_VIA "Butler - Blue Ridge Parkway.gpx"

Appendix

Routes, Tracks, Point Types and Their Origin

They all come from the map.

As many who plan routes already know, a route is generally planned by indicating a relatively small number of locations to be visited. In the gpx context, these are via points.

A few more points are often added to the route, perhaps by dragging the route on a displayed map, to guide the route along particular desired roads. These are shaping points in the gpx context.

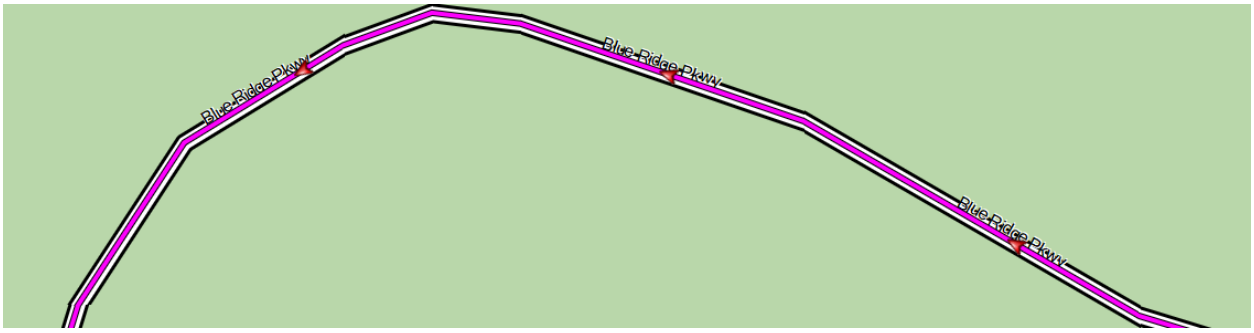
From these few user specified points, route planning software calculates a route which, of course, passes through each of the specified points. The path chosen by the software to connect those points can vary, sometimes significantly, depending on the routing algorithm implemented in the software, the map, the user configured routing preferences and the user configured avoidances.

The flexibly provided by routes can be both helpful and challenging. Tracks, which are often generated from routes, are fixed in place, not at all flexible. This also can be both helpful and challenging depending on circumstances and intentions.

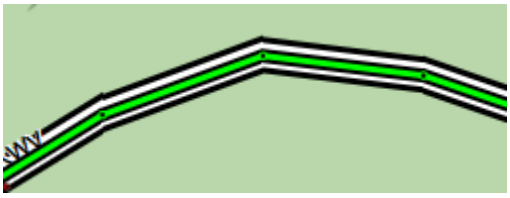
Both routes and tracks are made up of points. Understanding the different types of points and their origins can be helpful when planning routes. This understanding can also greatly reduce frustration when navigating a planned route.

The digital maps which routes and tracks are generated from are effectively made up of large numbers of points connected by straight lines. This can be seen by zooming in close on a digital map.

When a route is calculated to follow a particular road, it too becomes a series of straight lines.



And, when a track is generated from a route, each of those points on the map becomes a track point.



This is why generated tracks exported from route planners have large numbers of track points. It is also why tracks following curvy roads have very large numbers of track points.

Many route planners and devices, when exporting a route, export only the small number of original user specified route points, whether via and shaping (or user specified “waypoints” or “destinations” for route planners using that terminology).

The small number of points is what makes routes flexible but variable. The large number of points is what makes tracks in-flexible but stable. Common routes and tracks are the two extremes on a spectrum along a flexible – stable tradeoff.

Some route planners will export both a route and a corresponding track.

Other route planners will export the route points as waypoints, and also export a track.

Google applications export placemark points and linestring coordinates, which are effectively waypoints and a track by different names.

Each of these pairs generally provides the same information, only in different formats.

A Garmin style calculated route combines the route and track, and adds a bit more information. In addition to the user specified route points, which may be via and/or shaping, these routes contain "hidden" route point extensions, which provide the track point locations. This means a track can be extracted from a Garmin calculated route even though it cannot be extracted from the more common route exported from many route planners and devices.

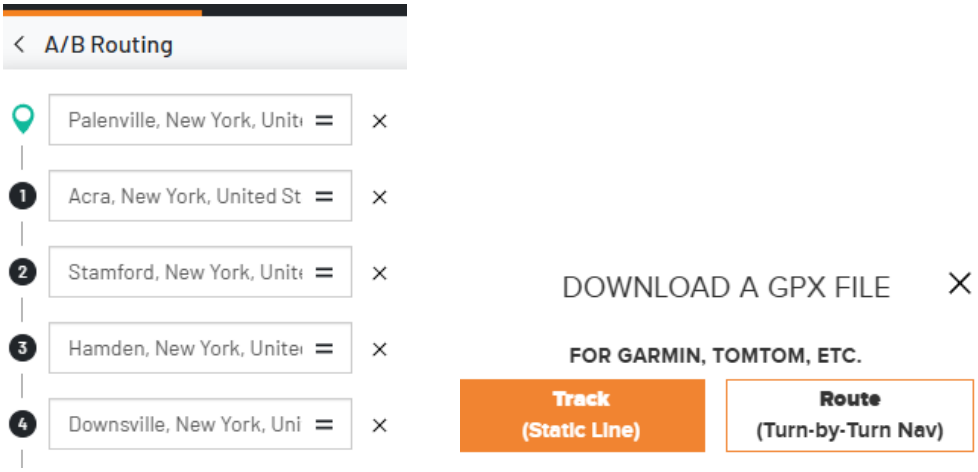
Further, for a relatively small subset of the route point extensions, Garmin style calculated routes include a subclass. Subclasses provide additional information extracted from the map, including road changes of various types. Generally, every road in a route will have at least one subclassed point (a.k.a road change point). Some roads will have a few of them. Accurately drawing a complete route on a map requires all of the route point extension points (a.k.a track points). Recalculating a route which is guaranteed to follow the originally calculated route requires only the subset of route point extensions which indicate a road change. For most practical purposes only a small % of the track points or road change points are required to recalculate a route with reasonable accuracy using most any route planner or navigation device.

On import to Trk2Rt, the route points, or waypoints become the primary route points. Note that these points are the locations a user would have originally specified in whatever route planning tool they happen to have chosen.

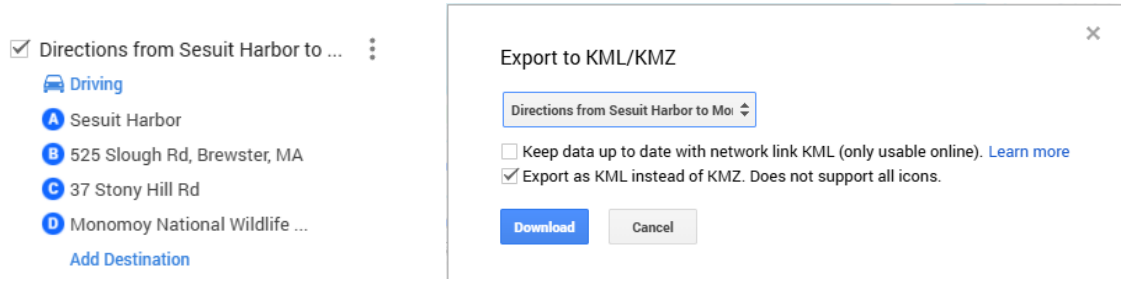
The route point extensions, or track points, would have been taken from a map following a routing calculation by the route planning software. Those additional points are made available by Trk2Rt so that a configurable % of them can be included in an exported route as additional shaping points. The additional shaping points increase the stability of the route when it is recalculated, at the cost of reduced flexibility. By keeping the % of additional shaping points small, the Trk2Rt user can achieve the desired level of route stability with sacrificing excessive flexibility.

Importing from Rever, Google, or other Waypoint & Track Sources

With Rever, a user builds a route by specifying “waypoints” and, after saving, can export either a track or a route as shown below. Track is a better choice for import to Trk2Rt. Rever will export a gpx file containing the original user specified points as independent waypoints and the complete route as a track.



With Google My Maps, a user builds a route by specifying “destinations”. Export options include “Directions …” as a KML file, which will export placemark points (similar to waypoints) and linestring coordinates (similar to track points).



There are various other route planning tools and devices which export waypoints and tracks into gpx files.

Trk2Rt will import any of these, create primary route points from the waypoints or placemark points and offer a configurable % of the track points or coordinates to be exported as additional shaping points in a route. Trk2Rt can export the waypoints, track, and/or route into a standard gpx file compatible with most any route planning tool or navigation device.

Importing from MRA, or other Route and Track Sources

The MRA Routeplanner[1] (MyRoute-app[1]) and several other route planning tools export a gpx file containing a common route and a track generated from that route.

As with a common gpx route from most any route planner, recalculating with any other planner or device can result in a route which does not entirely follow the track (the original planned route). This is not the fault of any tool or device. It is the nature of routes, which are built from a limited number of points. That is what makes routes flexible.

Trk2Rt will import the route, taking the original route points as primary route points, and will also import the track. It makes a configurable % of the track points available as additional shaping points for the route. This can form a route that will follow the original route and track. Trk2Rt can then export waypoints, the track, and/or the enhanced route into a standard gpx file compatible with most any route planning tool or navigation device.

Importing a Garmin Style Calculated Route

As discussed above, a Garmin style calculated route exported to a gpx file includes the usual via and/or shaping points and also includes a large number of hidden points which completely define the route and the track.

Trk2Rt will import such a route, take the original user specified route points as primary route points, and, make a configurable % of hidden points available as additional shaping points. This makes the exported route more stable on recalculation by most any route planner or navigation device. Again for this type of import, Trk2Rt can export waypoints, a track, and/or the enhanced route, into a standard gpx file compatible with most any route planning tool or navigation device.

Export a Universally Shareable Package

A route is flexible because it is made up of few points. A track is in-flexible because it is made up of a very large number of points. The two provide the extremes of the tradeoff between a path that can easily vary, sometimes too much, and one that will never vary.

Trk2Rt allows the user to dial in a route between those two extremes. By adding a user controllable small number of additional shaping points to a route, or by creating such a route, Trk2Rt can export a route that is more consistent when recalculated across a variety of devices and / or route planners.

Further, Trk2Rt can export a consistent set of waypoints, tracks and/or routes as desired, providing standard gpx files which can be imported by most route planners and devices, even if they support only a subset of those 3 forms.

When a user wishes to share a route with others, regardless of what tools or devices they use, the enhanced route along with waypoints and track exported by Trk2Rt, can provide a “universally sharable” package.

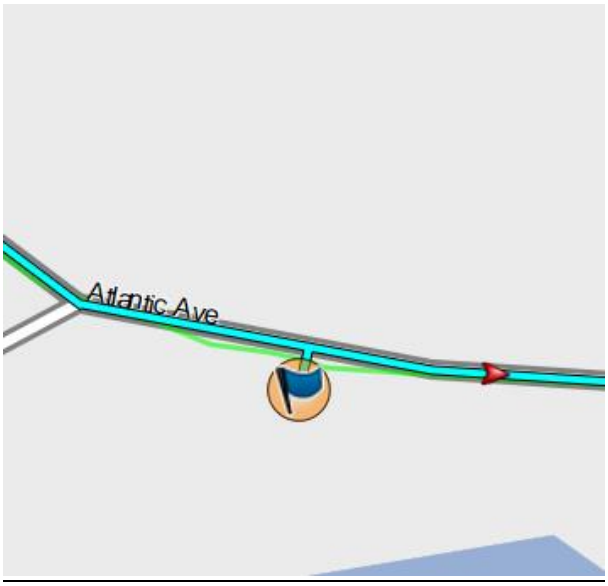
Tips and Troubleshooting

The following are a few general route planning tips. Most are not specific to Trk2Rt.

Check results before traveling:

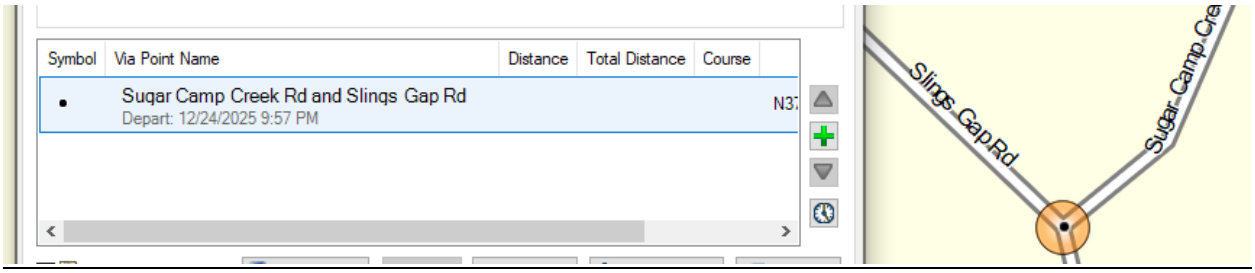
Regardless of the navigation tools and devices used, recalculating and carefully checking results at a close zoom level, using the tool or device to be used during navigation, is highly recommended to be sure results meet each user's expectations. Making adjustments while planning at a desk can avoid frustration on the side of the road while traveling.

Placing route points while zoomed out on a map, or slight differences in the maps used by various tools, can sometimes result in route points located slightly off a road, on the wrong side of a divided highway, or even on the wrong road,. Reviewing the route, in advance, at a close zoom level allows these to be easily corrected.



Avoid route points at intersections

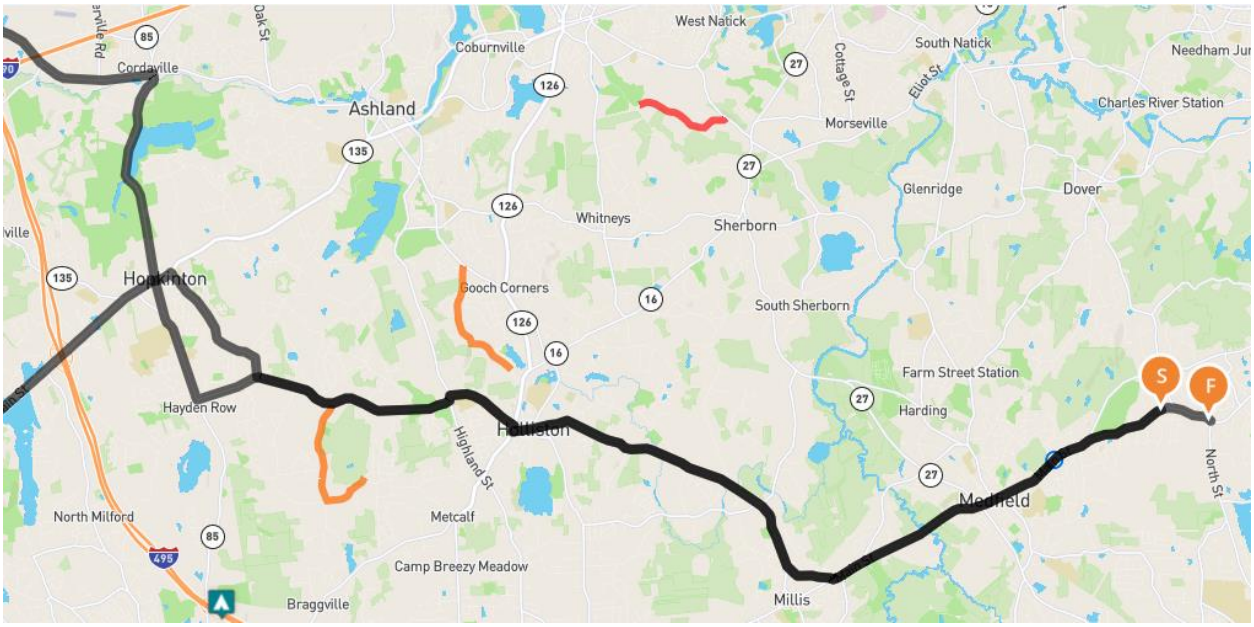
If a route point is located at an intersection, it is not clear which road the point is on. This can sometimes confuse certain features of some routing software and some navigation devices, as well as spoken directions. It is generally better to move route points to after intersections.



Trk2Rt minimizes placing additional shaping points at intersections but cannot avoid it entirely. The "Re-locate each primary route point to its closest track point" involves a tradeoff between moving original points onto roads and inadvertently placing them at intersections. For either selection, reviewing exported routes at a close zoom level is recommended.

Avoid crossing and overlapping routes

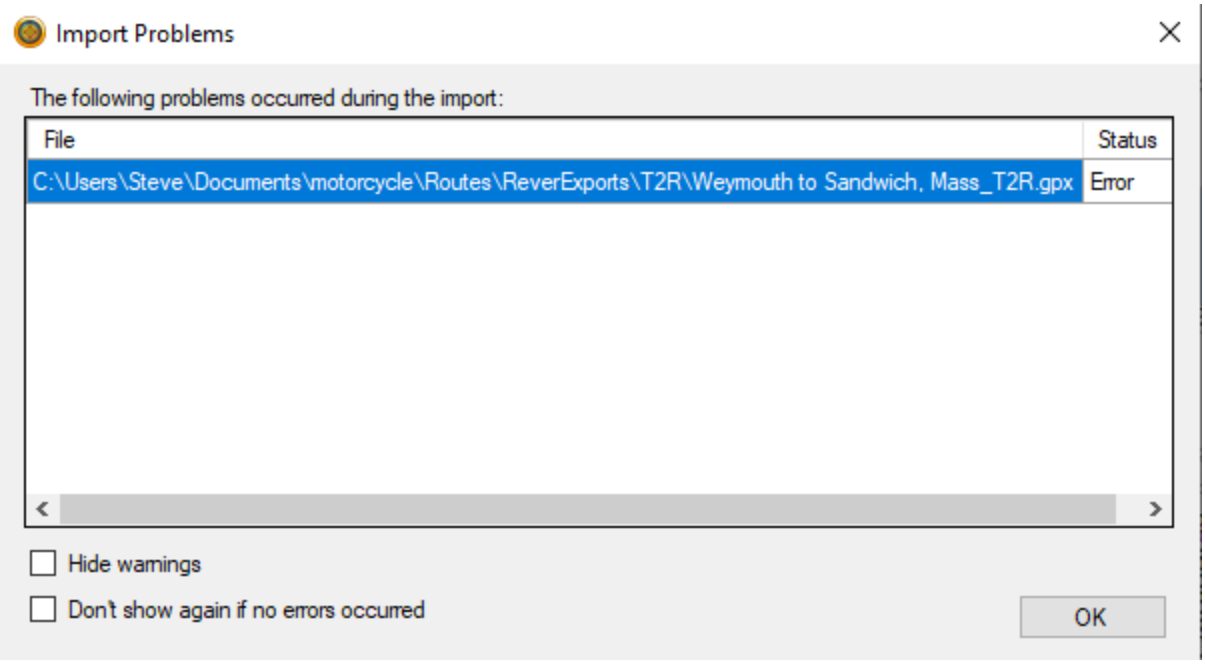
Routes which cross over themselves or overlap can also confuse some features of some planners and navigators. It is generally better to break such a route into separate out and back routes.



Avoid special characters

Certain special characters (e.g. "&") in route, track or point names can cause problems. Both GPX and KML files use the XML file format. Special characters can cause failures when software parses xml files on import.

Here is an example from Garmin Basecamp.



Links

Trk2Rt: https://github.com/SteveFollen/Trk2Rt

GPLv3: https://www.gnu.org/licenses/gpl-3.0.en.html

Trk2Rt relies on RapidXML[1] for import file parsing.
Rapid XML: https://rapidxml.sourceforge.net/

Trip Manager: https://zumouserforums.co.uk/viewtopic.php?t=3150

Zumo user's forum: https://zumouserforums.co.uk/index.php

[i] Rever, Google, Garmin, Basecamp, zumo, GPL, Windows, GitHub, zumo user forum, Trip Manager, RapidXML, MRA Routeplanner, and MyRoute-app may be trademarks of their respective owners.