

Terrain Navigator Pro

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Introduction

Welcome to Terrain Navigator Pro version 10.4!

Already use Terrain Navigator Pro software?

If you're upgrading from a previous version of Terrain Navigator Pro, be sure to check the section titled What's New. We've added hundreds of features over the last few years that we know you will appreciate and enjoy.

New to Terrain Navigator Pro?

If you are new to Terrain Navigator Pro, you may want to start by learning "The Basics." The first topic in this step by step tutorial in getting started with Terrain Navigator Pro is titled: Opening Maps.

Contacting MyTopo, a Trimble Company

If you have a question and you can't find the answer here in the Help pages, MyTopo's technical support staff will be happy to assist you. Support is available from Monday-Friday, 9am to 5pm, MountainTime:

Telephone: 800-627-7236

E-mail: tnp@mytopo.com

Fax: 866-207-0626

Internet: <http://tnp.uservoice.com/knowledgebase/>

MyTopo's Support site provides software updates, plug-in utilities, and Technical Documents. In addition, you will find an online technical support discussion forum, where MyTopo software users and technical support staff can share information, suggestions and comments.

To go directly to Terrain Navigator Pro's support site, open the **Help** menu and select **Web Support**.

We also offer Remote Technical support. Open the **Help** menu and select **Remote Tech Support Control**. Be sure to call us before requesting remote assistance.

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Help document version 10.4 for use with Terrain Navigator Pro version 10.4 and higher.

What's New in Terrain Navigator Pro

Our crew are constantly working to revise and improve Terrain Navigator Pro - here are some of the highlights:


New in version 10.40:

- **Unit Preferences:** We've completely reworked the way units are specified and displayed throughout Terrain Navigator Pro. In previous versions, there was little control if a specific display would be in feet or meters, and support for alternative units (like surveyors chains) was limited. Now with Unit Preferences you can specify a primary and secondary unit for use in computing/displaying length, height, and area.
- **Web Planner:** Log into your account at <http://www.terrainnavigator.com> to access and edit projects stored on the TNP Cloud. This is the same as using Project Synchronization to link desktop projects with the TNP Mobile App. However, not only can these projects be viewed and used on a smartphone, they can be accessed using any web browser.
- **Trimble Leap GNSS Receiver RINEX file processing:** Found in the GPS menu, under Utilities a new option has been added for Trimble Leap RINEX Conversion. This allows the "raw" files saved from the TNP Mobile App generated from a Trimble Leap GNSS Receiver to be converted into RINEX for further processing and review. This feature requires a Trimble Leap GNSS Receiver as well as an active subscription to the Trimble Leap Connect Service.
- Other updates include a variety of minor improvements, a corrected PLSS/TSR database (for proper display of quarter-quarter quads in certain states), and updated aerial photos for 24 states (with faster servers to deliver them.)

New in version 10.31:

- Version 10.31 is a maintenance release. No major features were added. Instead a number of incompatibly issues were addressed.

New in version 10.3:

- **Hi Precision Coordinates:** When used in conjunction with the Trimble Leap GNSS Receiver, Terrain Navigator Pro can now display coordinates with increased accuracy. Each information and coordinate entry area will display a GPS symbol  when high-precision information is received. Hold the mouse over the GPS symbol to display the collection method and other statistics.
- **Updates:** The PLSS/TSR township/range grid and coordinate system has been completely revamped. The optional land ownership and parcel data has been updated. Finally, the magnetic variance model uses the 2015 NOAA calculation.
- **Polygon Improvements:** We have added polygons to the legend page block in the Print (and export) window. You can now illustrate all of the colors, patterns and features available in Polygons on the map legend. You can now right-click on an overlay and create a polygon from that overlay object.
- **Improvements to Layers and Projects:** Various incompatibilities with GeoPins have been addressed to be more reliable when used with the TNP Mobile App. The mouse cursor now works more consistently when editing a route. All the routes, markers, and tracks within a project can now be exported into a single KML or GPX file using File, Export, Active Project. In the Enterprise Edition, the ability to specify a team has been added to the New Project wizard.

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- The warnings on startup of Terrain Navigator Pro that indicate registration issues or invalid Internet connections have been clarified.

New in version 10.2:

- Land Ownership Parcels: Now available as a separate "tier" to the annual subscription. Display and search land ownership throughout the state by APN, owner, and address. Additional features include the ability to convert parcel outlines to polygons, closed routes/tracks, and markers (of their center position.) Parcels can be sent to the GPS or synchronized with the TNP Mobile App. The parcel ownership tier can be added to your subscription by calling 800-627-7236.
- A New Project Wizard makes creating and synchronizing projects between desktop and mobile easier than before.
- The grid line colors for Custom Grids on both topographic maps and aerial photos can now be adjusted.
- Those using Terrain Navigator Pro Enterprise Edition to track their teammates may now set the name to be displayed in a variety of formats. For example: Firstname, Firstname/Lastname, First Initial/Lastname Username, and a variety of other options.
- We corrected compatibility issues with: NGS data sheets, shapefile overlays, and the GPS Setup Wizard, and completed other minor improvements throughout the software.
- Terrain Navigator Pro's official home on the web, <http://www.terrainnavigator.com> has new features - including the ability to view projects that have synchronized to the TNP Mobile App via the TNP Cloud. Here you will also find account management functions, such as the ability to change (or reset) your password. Note that the change password feature is no longer available in Subscription and User Account preferences.

New in version 10.1:

- Many improvements to Team Tracking (Enterprise Edition). When team members are removed from a team, they are also removed from the team tracking window. When "finding" routes that have been hidden from view, the route will be automatically shown. When an SOS is received, the messages window will automatically come forward. New status displays for Low Battery and Poor GPS signal. Waypoint numbering has been improved. Now allows offline use legacy (Pryme, InfinityGear) team tracking hardware.
- The Subscription and User Account Preference now indicates the expiration date for the subscription portion of each state.
- Support for dual monitor systems has been increased.
- Printing, Publishing and Exporting Improvements. A new print template, Basic GIS has been added. The copyright text imbedded on small image exports is sized appropriately. Fixes for BMP and JPG export in Export Active Map (and Export Multiple Maps.) CTRL-C restored as keyboard shortcut to copy the map image to the clipboard.
- Layer Improvements. Fixed Range Ring to Track creation when set by time is used for range ring spacing. Fixed editing of Route waypoint symbols enabling route waypoint names. Fixed reliability of Track Information window. Improved compatibility with certain KMZ/KML files imported as Overlays.
- Increased reliability of copying aerial photos to the hard drive. Increased reliability of configuring new states to an existing installation of Terrain Navigator Pro.

New in version 10.0:


- Enterprise Edition Licensing. Now you can customize your Terrain Navigator Pro installation to meet the needs of your organization. Freely synchronize projects among multiple users of desktop clients and the TNP Mobile App via the TNP Cloud. Create teams and track their mobile positions in real time. Note that a special Enterprise license is required - call us at 800-627-7236 to find out the details. The Enterprise Edition also replaces the former Terrain Navigator Pro Network Edition.
- A new registration and account system has been created. This, along with a new installer wizard, makes transferring your Terrain Navigator Pro license (and subscription renewals) much easier.
- A new preference for Subscription and User Account has been added to provide (and change) the login information for access to your TNP Mobile App.
- We've improved the aerial photo display. It's faster than ever, and more reliable when used on wireless Internet connections.
- There are new tools to convert routes and tracks to polygons. Right click on a route or track, and select Create Polygon.
- The Export Maps feature has been reworked to increase compatibility with GeoTIFF images.
- The Place Finder database for locating geographic features (City/Towns, Airports, Lakes, etc.) has been updated.
- The number of Track Points in the selected track is now displayed in the Edit Tracks window.
- The AutoBackup feature now retains three copies of each project: the most recent changes, the prior sessions' changes, and a copy which contains the largest collection layers that project ever had. The large version is especially helpful in recovering large numbers of layers that have been accidentally deleted.

New in version 9.51:

- Version 9.51 is a maintenance release. No major features were added. Instead a number of incompatibly issues were addressed.

New in version 9.5:

- A new Polygon tool allows you to quickly create basic shapes while computing (and automatically displaying) their area. Polygons can have multiple parts and contain "holes" (like a donut shape.) While the polygon tool is much more flexible than creating "looped" routes or tracks, these features remain available.
- GeoPins have been improved to include additional Font/Labeling Options. Also GeoPins now support Bi-Directional Synchronization to the TNP Mobile App: Modify the name or position of the photo/video/audio clip on the desktop, the change is reflected on the mobile device. Finally, GeoPin objects can be embedded into Projects and shared among other Terrain Navigator Pro users and/or backed up for archival purposes.
- The display and download of maps and photos has significantly improved. Base topographic maps can now be downloaded and displayed via an Internet connection (in the event the original Professional USGS Topographic DVDs are lost or missing.) All photos and maps are downloaded in a "progressive" manner - and at speeds much faster than previously possible.
- A new control has been added to provide quicker access to Alternate Editions of topographic maps (including shaded relief) and aerial photos. This control can be hidden in the General Preferences window.

- The cursor tools for editing of markers, routes, tracks, etc. have been revised to allow for easier editing. In doing so, we've retired the old "edge scroll" arrow, but now automatically change to the hand/drag tool when you reach the screen's edge. We've also added new start and end dots to indicate the direction a track is going - making editing and appending easier.
- The Earth button  can now be configured to open any map type, not just Google Earth. This allows one button split and synch with aerial photos.
- The Manage Projects window (formerly known as *My Projects* or *Change Project*) under the Layers menu has been completely redone. By popular request, you may now set an initial "startup" map for any Project. Project Synchronization is now fully integrated (and removed as a separate menu item.) Also, simple 1-click options have been added to simplify synchronization with the TNP Mobile App.
- States are now loaded and displayed as single units – no more swapping between CD/DVD regions! In doing so, the Copy Maps to Hard Drive feature has been renamed and expanded to **Map/Photo Management for your state** and **Map/Photo Management Across State Boundaries**.
- New Preferences abound. These include the ability to specify *Grid North* for bearing computations and display (in addition to *True* and *Magnetic North*.)
- Now new Range Rings and Range/Bearing Lines can be created using the locations of existing markers. Also, Range/Bearing Lines can be created from legs of existing routes. Finally, new routes and tracks can be created from a range ring.
- The Place Finder database for locating geographic features (City/Towns, Airports, Lakes, etc.) has been updated.
- The TNP Mobile App will now display routes created on the Terrain Navigator Pro desktop software (when linked through Project Synchronization.)

New in version 9.21:

- Version 9.21 is a maintenance release. No major features were added. Instead a number of incompatibly issues were addressed.
- A minor improvement was made to the Manage GPS Maps window, which allows a listing of the markers, routes, and tracks that are linked to a GPS Map.

New in version 9.2:

- Now on iPhone and Android: TNP Mobile App. The TNP Mobile App allows you to view your position, record tracks, place markers, and take photos, videos, and sound bites with your mobile device.
- Use Project Synchronization to automatically share your markers, routes, tracks, and geopins with other copies of Terrain Navigator Pro - either on your mobile device, or others in your office. Moreover, with a variety of synchronization methods, projects can be synchronized against other projects - creating backups, combined projects, and other possibilities.
- The dashboard at the bottom of the map window has been revamped with help and status lights now appearing. When the Internet is accessed for photos and maps, a thermometer will indicate this activity. The dashboard is controlled in General Preferences.
- A new shortcut allows you to click with the right mouse button and choose **Copy this Map to Hard Drive**. This is a quick and easy bypass to the Copy Maps to Hard Drive window and works with any map, photo, or alternate edition map/photo.

- To further increase compatibility, the use of system fonts for marker and waypoint symbols is now limited to TrueType and Outline Fonts.
- In order to allow for more flexible synchronization methods, the Undo function will only revert a deleted layer when project synchronization is occurring.
- A new Reverse Track button is now available in the Edit Tracks window. This allows you to "flip" the track such that the first point becomes the last, and the last its first. This can also be accessed by right clicking on the track and choosing **Reverse**.
- In order to better emphasize their importance, and to match the terminology employed by the TNP Mobile App, we've revised the Change Project window to **My Projects**. It can still be found in the **Layers** menu, along with the new **Project Synchronization** option. Projects can also be 'locked' so to prevent further editing. For details, see the topic on My Projects.

New in version 9.1:

- Auto Updates of Software: Terrain Navigator Pro will automatically inform you if a new software version is available. With your consent, the new version will be downloaded and installed. This option can be disabled (or immediately enacted) using the Internet Access and Map Cache preferences.
- Enhanced Aerial Photo speed: Display and printing of aerial photos (both standard and alternate editions) has been improved to reduce delays in performance. Also, aerial photos (and access to Alternate editions) will appear more reliably in certain circumstances.
- Google Earth: Usage of Google Earth in conjunction with Terrain Navigator Pro has been improved. Specifically, when Google Earth is not embedded within a Terrain Navigator Pro window (as specified in the Google Earth preferences) Google Earth will no longer appear in the list of available Map Types. Access is provided by the Sync with Google Earth button on the toolbar, or by opening the **Window** menu and choosing **Sync with Google Earth**.
- Street Layer: The Street Layer has been improved to reduce the likelihood that a street will be labeled repeatedly across the screen. Also, updated street data is now available on the version 10.4 Installer DVD.
- Installation: The command to add additional state discs has been revised. It is now referred to as **Setup States and Regions**, and can be accessed via the **File** menu, or through the CD Library window.

New in version 9.0:

- Map (and Aerial Photo) Editions: Alternate types of topographic maps and aerial photos are now available. For example, topographic maps can include shaded relief; aerial photos can be of different years - or in black and white instead of full color. Additional editions (such as infrared photos, for example) will be added automatically as long as your subscription remains active - the possibilities are limitless. Also, maps and photos of differing editions can be stitched together using Mixed View.
- Street Layer now included: See a current street map superimposed on the topographic map and aerial photos. Streets are labeled, can be toggled on and off, and can be included on printed maps. (Unfortunately, street routing with turn-by-turn directions and a separate street map type are not currently available; those features were part of the now discontinued US Streets Module.)
- Additional Map/Aerial Photo features and improvements include: new "Splitter" Window control to make side-by-side (or top-bottom) display of two maps (and/or aerial photos) easier to manipulate and use; Aerial Photos are labeled with features such as city names, mountain peaks, and other places of interest - this can be turned off (by category, or entirely) in the Layer Size/Visibility window; Aerial Photos (and topographic map versions viewed from the Terrain Navigator Pro

server) fade in quickly, then add detail for increased speed; support for wireless carriers who manipulate aerial photo overview packets.

- **Web Links:** Automatically open web pages related to the current geographic location. Want to know the current weather at the location on a map? Open the Web Link for 'NOAA Weather'. Or get driving directions to (or from) your cursor position. Over a dozen Web Links are included - and are automatically updated. Plus, you can create your own Web Links to any web site that accepts a digital position.
- **PDF Export:** Create PDF documents featuring topographic maps and aerial photos directly from the Print window - no additional software is required.
- **New Backup and Restore Features:** Automatically archive Projects into any location; Backup (or Restore) all Projects at once. No longer worry about keeping up-to-date archives of your important Markers, Routes, Tracks, etc.
- **New Track features:** Split existing tracks into separate segments; 3D compatibility on certain displays; increased compatibility with Google Earth; color is preserved when sharing tracks with most compatible Garmin GPSs.
- **Additional Tool Features:** Distance tool indicates grade of current segment; added ability to reset automatic Label numbering; color orange is now available; progress thermometer appears when doing time-sensitive operations (eliminating Windows 7's "Not Responding" errors); Notes available for Projects in list of available Projects; file import (MXF, GPX, etc.) can import multiple files at once; metric preference added for various tools, support added for 1024x800 displays.
- **Improved GPS Compatibility and Features:** Markers, Routes, and Tracks can be linked and automatically transferred (or updated) whenever matching custom maps are sent to (or edited for) compatible Garmin GPSs; direct support for the Garmin Montana and Garmin eTrex 10/20/30 GPS units; improved tracking functions with Garmin USB GPSs; improved compatibility of the GPS Setup Wizard.
- **Print Preview Improved:** The speed of the Print Preview has been significantly enhanced, especially when manipulating aerial photos. Also, the grid-like pattern that could appear on exported aerial photos has been virtually eliminated.
- **New Copy/Paste Functions:** Copy Coordinates to Clipboard; copy multiple Markers, Routes, Tracks, etc. to Clipboard (via Export window).
- **Increased compatibility of 3D display on 64-bit operating systems.** This includes printing, 3-D Glasses/Anaglyph mode, copy to clipboard, etc.
- **Additional GIS Import Formats for Overlays:** Support of 'Bulge' attribute of LWPOLYLINE types from DXF file; other improvements to DXF compatibility and other Overlays.
- **Improved display of Alaskan topographic maps and 3D elevation data.** (Elevation improvements are available by separate download.) Improved support for Alaskan map reprojection/export (Hotine Oblique Mercator) in Alaska Zone 1.
- **New features for Team Tracker (optional module):** Direct control of Pryme Radio GPS Mic configuration; NMEA waypoint support (WPL, TTL and TXT strings) for interfacing and tracking of single or multiple field units using APRS (or similar) devices.

New in version 8.71:

- Many of the changes in version 8.71 are centered around improved GPS compatibility and other enhancements.
These are detailed below:

- Direct support for the Garmin GPSmap 62s, (including the 62 and 62st) has been added. Markers, routes, tracks and maps can now be shared directly between this GPS and Terrain Navigator Pro.
- Support for the Garmin Oregon series of GPSs has been improved. In previous versions of Terrain Navigator Pro, there was a single entry for the Garmin Oregon in the GPS Setup window which was designed to accommodate all GPSs in the Oregon family. However, the protocol developed by Garmin differs between the "x00" (Oregon 200, 300, 400, and 500) and the newer "x50" (Oregon 450 and 550) models. Thus, there are now two different settings for the Garmin Oregon in the GPS Setup window. Choose the 'Oregon x00 Series USB' unit setting if you have an Oregon 200, 300, 400, or 500. Choose the 'Oregon x50 Series USB' unit setting if you have an Oregon 450, or 550.
- The GPS Setup Wizard has been revamped and is now completely compatible with Garmin "Mass Storage" GPSs. Regardless of the type of GPS attached, the wizard will automatically detect the proper unit and make the correct selection. Note that we recommend using the latest GPS software update (available free from Garmin) for maximum compatibility with Terrain Navigator Pro.
- The preference for dealing with track segments has been changed. This setting will now automatically split track segments into individual tracks. This preference will also now apply to "Mass Storage" GPS units that store their information in .GPX files (such as the Garmin Oregon, Colorado, Dakota, and GPSmap 62. Finally, this setting will also combine segmented tracks when imported from .GPX files (regardless of source.)
- Support for renaming/ appending tracks upon import from a Mass Storage (.GPX file based) Garmin GPS has been added.
- In some circumstances, during sharing of route data with a Magellan eXplorist series GPS, an erroneous warning would appear. This warning has been removed.
- A new feature has been added for those with the optional US Streets Module. Street routing tracks can now be created from the current GPS position to any specified destination.
- The optional Team Tracker module has been improved to support polling from 2 or more Pryme GPS microphones. Other minor incompatibilities have also been addressed.
- Improved accuracy of Profile measurements. Under certain circumstances, the Profile (or Line of Sight) window could give inaccurate measurements in version 8.7. This has been corrected in version 8.71
- Printing Improvements:
Under certain circumstances, using the 'Magnetic declination lines' on the compass rose Page Block would cause some printers to behave erratically - not printing the desired map. Also, not all options for the Profile Page Block would appear. Finally, some maps were not be able to be printed. These have all been corrected.
- On occasion, Terrain Navigator Pro would display "Not Responding" messages after switching between other applications and Terrain Navigator Pro when using Windows 7 or Windows Vista. This incompatibility has been corrected.
- In some cases, Terrain Navigator Pro was unable to import certain KML/KMZ and ShapeFile files as Overlays. This included shapefiles created by non-ESRI applications that failed to adhere to certain specifications. We have attempted to make the Overlay import feature of Terrain Navigator Pro more robust, to allow for these variations.

New in version 8.7:

- Certain Garmin GPS units (such as the Oregon, Colorado, and Dakota) will accept maps (and aerial photos) created with Terrain Navigator Pro. To fully support these features - and make creating and managing these maps as simple as possible - we've added Send Maps to GPS, a GPS Map Edit window, and a easy way to Manage your collection of GPS maps.
- KMZ (Keyhole Markup Language - most commonly associated with Google Earth) Map Saving has been added to the Print/Export features of Terrain Navigator Pro.
- Import/viewing of Overlays (Shapefile, KMZ, DXF) Terrain Navigator Pro can now view GIS datasets created with other applications such as ESRI ArcGIS, AutoCAD, etc. While direct editing of Overlays is not supported, overlays can be converted into routes or tracks for refinement. Options are provided for setting the color and style of overlays, as well as text labeling.
- Support for NMEA UDP - the ability to receive a single GPS feed from an IP address and Port - is now included as part of the GPS Setup.
- Pick Any Symbol. Any symbol or character in any font installed on the PC can be used as a Waypoint or Marker symbol. With thousands of Windows-compatible fonts available, Terrain Navigator Pro can access a limitless number of icons for annotating maps.
- Printing Improvements: Based upon feedback following the Printing and Publishing features added in version 8.6, the additional refinements were added: a 1" tic mark layer, an easy way to set the number of copies, more control over scale bars, printer vs. computer map imaging (and other compatibility improvements with certain printers), unobstructed coordinates along the gridline ruler, the ability to automatically show the map image after export, and a new "map only" print template.

New in version 8.6:

- Map Printing and Publishing now features a revolutionary new print layout system that easily allows full control over the printed page. A fully interactive print preview is the heart of this new design. Moreover, version 8.6's print layout also functions in saving the maps as BMP, TIFF, and JPG image files. Publishing maps for inclusion in reports, emails, and presentations has never been easier.
- Quick Print has been redone so to provide a one-click shortcut to your most common printing task.
- Map reprojection and export now properly supports the Hotine Oblique Mercator projection in Alaska, Zone 1. Also, maps with non-standard areas (bumped-out into the map collar) are now exporting these bumped-out areas.
- A global slider in Layer Visibility Preferences allows you to size your layers (Routes, Markers, etc.) to fit the size of the view area. You can also elect to keep your layers sized to match the map scale, or to remain at a constant size regardless of scale.
- Terrain Navigator Pro is now compatible with Google Earth version 5.1.
- Additional features for the optional Plugin Module: Team Tracker: We've added support for Pryme Radio Product's GPS mic. This device allows GPS positions to be transmitted to a home base - and now interactively displayed in Terrain Navigator Pro. We also added support for NMEA UDP - the ability to receive a single GPS feed from an IP address and Port.
- Support for the *Garmin Dakota* series of GPS units has been added.
- Basic compatibility with Windows 7 operating system. (Full compatibility was achieved in version 8.71.)

New in version 8.51:

- New GPS Units have been added, including support for the *Garmin Colorado*, *Garmin Oregon*, *Garmin eTrex Legend HCx*, and *Magellan eXplorist*. Similar GPS units (such as the *Garmin Rino 530HCx*) should also be compatible for the transfer of Markers, Routes, and Tracks to and from these GPSs. We also modified the GPS Setup window, so that only COM ports that are currently active on the computer are available for automatic selection. (However, any valid COM port can be typed in.)
- GPX file compatibility has been improved. Specifically, import/export of GPX files will now put names and comments in the correct field and there is better handling of duplicate names.
- Printing of aerial photos has been improved. We've also added MGRS (National Grid) printing. Finally, customized Magnetic Grids can now be included on the printed map.
- Copy and Paste is now available. Use this to share routes, tracks, markers, and the like between projects. In fact, whole Projects can even be duplicated. Moreover, you can Paste objects into other applications (as if they were exported as .RXF, .MXF, .TXF, etc. files.)
- New Import/Export formats have been added to allow backup, restore, and transfer of Range Rings, Range/Bearing Lines, Labels, and GeoPins.
- Pick Any Symbol. With the Emergency Management SymbolPack (sold as a separate plug-in to Terrain Navigator Pro) any symbol or character in any font installed on the PC can be used as a Waypoint or Marker symbol.
- Symbol Background Color is now available for Markers and Route Waypoints. Now your marks and waypoints can really stand out against the sometimes-cluttered background of maps and photos.
- Finding Coordinates is now easier than ever. No longer are you limited to searches within the active State - you can search for coordinates anywhere in the US (as long as there are maps for that State available for use in your installation.) Moreover, you can pick any coordinate format for your search right within the Find Coordinates window without changing your global coordinate preference.
- The Vara is now available as a unit when entering plot plans based on legal descriptions.
- The sizes available for 3-D View have been increased. Note that some older video display devices will not support the new "large" size.
- The Print window has been improved: it now features a resizable "blue box" for precise setting of the desired printable area. Changes made to the page Margins are also dynamically reflected in the Print Preview.

New in version 8.5:

- Optional Plugin Module: Emergency Management SymbolPack. Draw fire lines and place emergency management symbols on the maps with this optional module.
- Optional Plugin Module: Team Tracker. We've added support for Infinity GPS's new GPS mic. This great device allows GPS positions to be transmitted to a home base - and now interactively displayed in Terrain Navigator Pro.
- Symbol Rotation. Symbols (both markers and within route lines) can be rotated to any angle. They can also be set to rotate automatically along the path of the route. We also added preview windows to indicate how the line will appear on the map.

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- Find button. All edit windows (routes, tracks, etc.) now include a 'Find' button to locate the active item. You can even find the beginning or the end of routes and tracks.
- New "Save" features. There is a new **Save Layers** item in the **File** menu that initiates a save operation on the active project. There is also a new "autosave" function, whose frequency can be modulated in the General Preferences. (These are useful in the event your computer goes down or Terrain Navigator Pro terminates unexpectedly.)
- New Garmin Waypoint Format. Compatibility with certain Garmin GPS units has been improved through support for a new waypoint format.

New in version 8.0:

- Google Earth™. View Google Earth™ imagery alongside Terrain Navigator Pro maps and photos. View routes, tracks and markers on Google Earth™ images.
- New Color Aerial Photos. In partnership with the USDA, updated color aerial imagery is now available for most of the US. (Two states: Texas and Pennsylvania are in Black and White.)
- Street Maps. Terrain Navigator Pro now has optional street map coverage for the entire United States. Street maps can be viewed on their own or as an overlay on topographic maps and photos.
- Coordinate readings, bearings, time and elevation preferences are now adjusted in the in the Coordinate Preferences window.
- Township/range coordinate system. Find and view township, parcel and range grids as an overlay on maps and photos. Set in Coordinate Preferences. Use Find Coordinates to search for a specific TSR location.
- Multiple coordinate display window (Alternate Coordinates). You can now view locations on maps and photos using two different coordinate systems at the same time. Set in Coordinate Preferences.
- Touch screen mode. Terrain Navigator Pro can now be used more easily on a touch screen or tablet using the "Mouse Swap" button.
- Undo. Open the **Tools** menu and select **Undo** to undo the last task performed.
- Remote technical support. Download a small tool from Terrain Navigator Pro's website and we will be able to diagnose and fix any problems you may be having with Terrain Navigator Pro more easily.

New in version 7.5:

- Rename and/or break up tracks before they are imported into Terrain Navigator Pro.
- Select units of measurement for bearing readings.
- New GeoTip Options for Tracks: Leg Average Speed and Total Average Speed.
- Compatibility with Windows Vista™ operating system.

New in version 7.0:

- Export of markers/routes/tracks to ESRI's Shapefile format. Save your data in ESRI's .SHP file format for use in a wide range of GIS programs.
- Access to higher-resolution aerial photos and updated topographic maps (where available). Click **File > Map and Aerial Photo Updates via Web** to check for updated aerial photos/topographic

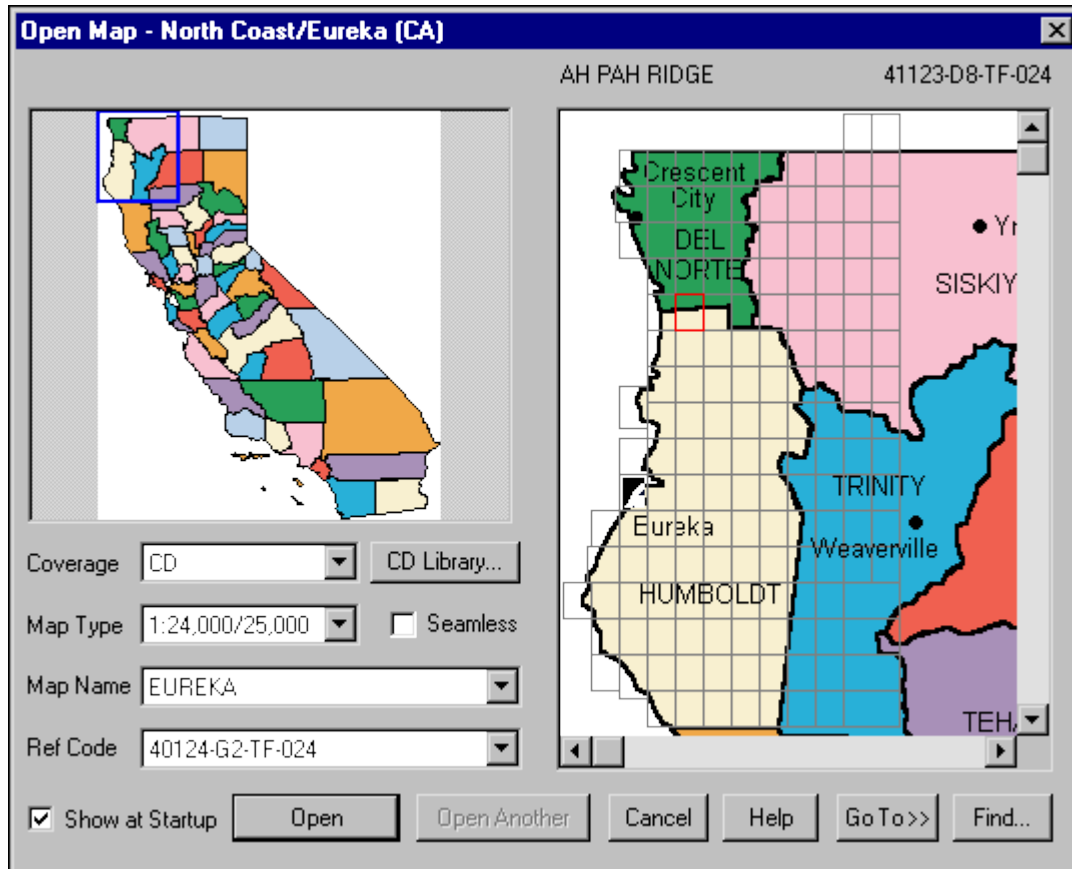
maps online, and download any new versions that are available. In addition, some photo coverage is available in color.

- 3-D Route Animation. Record an .AVI animation file showing progress along any route, shown in 3-D View.
- Expanded management of Projects. You can now rename projects, export them for storage or sharing, and import other people's projects. Project name is noted in program title bar for reference.
- Superimpose your own custom grid on maps/photos. Adjust the size and shape of grid rectangles to suit your purpose. Grid may be based on the coordinate system you're using, or measured against magnetic North.
- Waypoint creation by Public Land Survey System (PLSS) bearings.
- GPS Position Averaging feature helps maximize accuracy when marking single locations.
- Automatic GeoPin placement based on time/date stamp. Drag-and-drop files with a time/date stamp directly onto a GPS track. Files will attach themselves chronologically to the track based on the time the track points were recorded.
- Flexible printing options let you specify exact scales more easily, and define margins for the printed page. New optional scale bar graphic may be included on printouts.
- Track appending lets you connect multiple track lines.
- Additional export formats let you save your coordinate data in .GPX or .GEN format.
- Optional locking of windows in two-window mode. A new mode button allows you to lock both windows on the same geographic area and scroll them simultaneously.
- New fill options for looped routes and tracks: Create buffer zones at specified widths.

The Basics

Opening Maps

When you first start Terrain Navigator Pro, the *map selector* appears. You can also launch the map selector by opening the **File** menu and choosing **Open Map** or by pressing the open map button on the Compass Control Bar. The map selector is an overview of the state or region, with a grid showing the area covered by each map. As you move the cursor over the grid, each map's title and USGS reference code are shown at the top of the window. Double-click any square to open that map.



Moving Around the Map Selector

In the event that the area of your state (as specified by the Coverage selection, described below) does not fit in the map grid portion of the selector, you may move around the map selector using the scroll bars, dragging the blue box in the upper left-hand corner window, or by holding down the **Ctrl** key while dragging with the mouse.

Choosing the Coverage

The **Coverage** setting indicates how much or how little area you wish to look at. Depending on the number of grids within that state or scale, you may find adjusting the coverage will make locating a particular map or aerial photo easier.

Choosing a Different Map Scale

Terrain Navigator Pro Professional USGS Topographic Series discs provide three map scales to choose from. In most cases, the three scales are:

- **1:24,000/25,000** – These are the standard 7½-minute "quads" most often used for hiking, hunting, etc. (In Alaska, this scale is 1:63,000.)
- **1:100,000** - These maps cover a lot more ground than the 1:24,000 and 1:25,000 scale maps. They don't provide as much detail, but they give a much wider view of an area. (In Alaska, this scale is not available.)
- **1:250,000** - These maps cover even more ground than the 1:100,000 scale maps. They provide even less detail, but they give an even wider view of an area. Note that the 1:250,000 maps are also (generally) older than the 1:24,000 and 1:100,000 scale maps that are also available.

In addition, your Terrain Navigator Pro purchase entitles you to one year of access to downloadable aerial photos. Most are presented at 1:12,000 scale, but scales as large as 1:3,600 are available in some areas. Select a scale under **Map Type**. When you switch scales, you will notice that the map grid's squares will change size, to represent the different amount of area covered by each map at that scale.

Note that throughout this manual and within the Terrain Navigator Pro system, you will see references to maps. All map features can be equally applied to aerial photos by simply switching the Map Type to the 1:12,000 (or larger) scale.

Selecting Maps by Name

Select maps by **Map Name** using the drop-down menu provided. Click a title to highlight it and click **Open**.

Switching to Another State


If you have installed coverage for *another* state, click the **Select State** button and select a different state from the list. If the Select State button is not available, then no other states are configured for use in your copy of Terrain Navigator Pro. To add another state into your library of maps, open the **File** menu and choose **Setup States and Regions**.

Note: Throughout the Terrain Navigator Pro application (and in many portions of this manual) you will see references to CD discs. Starting in 2009, we have provided maps for Terrain Navigator Pro on DVD exclusively. Since older CDs remain compatible with Terrain Navigator Pro, menus and other options may indicate CD (as in "CD Library".) These functions apply equally to the DVD discs currently available for use with Terrain Navigator Pro.

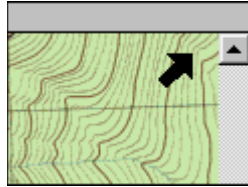
Starting with version 9.5, the CD/DVD model was abandoned completely. While the Professional USGS Topographic series discs are still required to load the software, all states (regardless of their size) are now shown as a single state. In instances where older "Maptech" CDs are still being used, we highly recommend copying the CDs to the hard drive to avoid confusion, or contact us for a current DVD set for a nominal fee.

Moving Around the Map

Drag Tool


 The *drag tool* (represented by the hand-shaped cursor symbol) is the default tool for moving around the maps: just click and drag the map image. The exact coordinates and approximate elevation of the cursor position are indicated on the Toolbar, and are updated as you move.

Drag Tool Changes to Scrolling Arrow



When you hold the drag tool at the edge of the screen, the cursor will change to a black arrow. Hold down the left mouse button, and the map will scroll in the direction of the arrow.

Centering Tool

 Select the *centering tool* from the toolbar, then click the map. The map image will be centered on the point that was clicked.

Compass Control



Click any point of the compass to shift the map in that direction. The map will shift half a screen width each time you click the compass. This is especially handy in 3-D View.

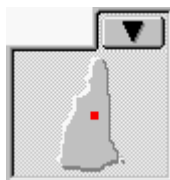
Map Overview



Beneath the compass is the *map overview*: a thumbnail image of the active map. The blue box represents the view on your screen, and indicates what part of the map is being displayed. To view a different portion of the map, click-and-drag the box to a new position, or click outside the box on another part of the map overview. The box will move to the place you clicked. The corresponding map area will display.

Tip: To enlarge the map overview, click the black arrow button that points up to the overview.

State Overview



The *state overview* (also found on the Compass Bar) is a thumbnail image of the state. The red dot gives a general idea of what portion of the state you're viewing. For a more detailed overview, click on the black arrow button that points down to the state overview. This will take you to the map selector, where the map you're viewing is highlighted. (Click a different square in the map grid to open a different map.)

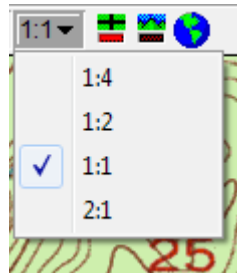
Note: The Compass Bar can be hidden from view in **File > Preferences > General**.

A few other ways to move around the map:

- Click the scroll bars on the map display. (These are only available in Single Map mode - the scroll bars are hidden when the maps are seamlessly stitched together.)
- **Page Up** and **Page Down** keys move the map up and down.
- Hold the **Shift** key and press **Page Up** for left, **Page Down** for right.

Zooming In and Out, Changing Map Types & Editions

Zoom Levels





Terrain Navigator Pro provides four zoom levels for viewing maps:

- 1:4 Zooms the map out to 25% of actual scale.
- 1:2 Zooms the map out to 50% of actual scale.
- 1:1 Original scale.
- 2:1 Magnifies the map by 200%.

When you first open a map, it is shown at a 1:1 zoom ratio. To see more of an area, zoom out. For a closer view, zoom in.

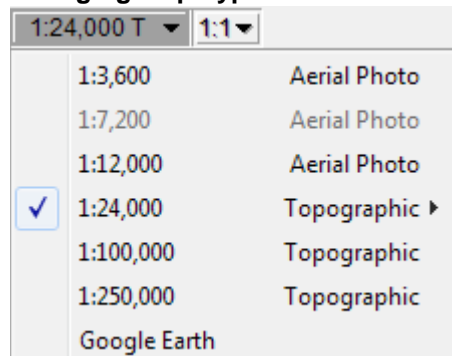
Use the toolbar (shown above) to select a specific zoom level, or

Select the **Zoom In**  or **Zoom Out**  tool and click the map. The zoomed map will be centered on the point that was clicked.

You can also right-click directly on the map and choose **Zoom In** or **Zoom Out**. Alternatively, the zoom ratio can be adjusted by opening the **View** menu and choosing **Zoom Level**.

Note: At 1:1 zoom, every pixel that makes up the map image is shown. To achieve other zoom levels, pixels are either added or taken away.

Changing Map Types and Scales



Terrain Navigator Pro includes different types of maps at different scales. For most regions, topographic maps are provided at 1:24,000/25:000, 1:100,000 and 1:250,000 scale. You also have access to 1:12,000, 1:7,200/1:8,000 and 1:3,600-scale aerial photos (where available), and Google Earth imagery. Use the toolbar's *Map Type* button to switch between map types, scales, and editions.

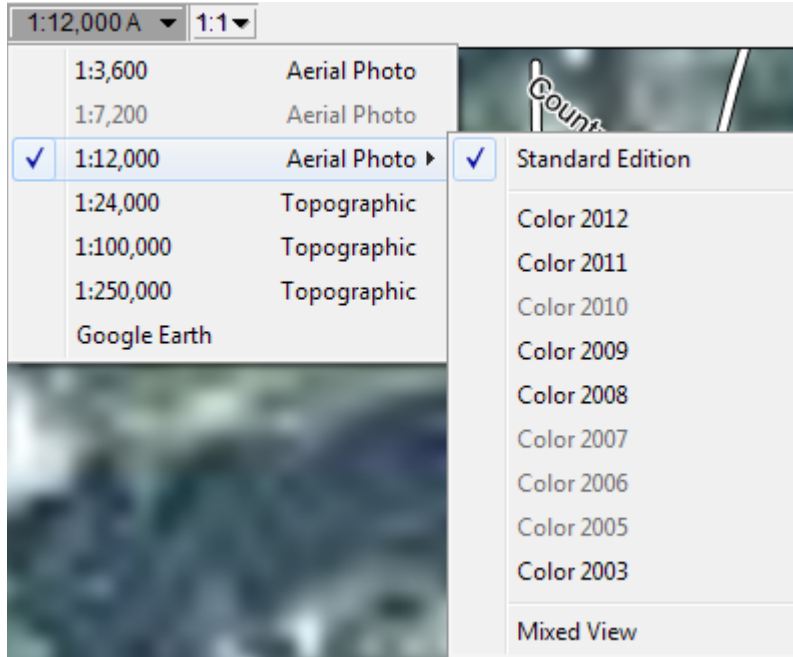
To the left of each scale available, the type of map will also be given. Topographic refers to contour maps produced by the USGS. An Aerial Photo refers to overhead imagery, which is more current than the base USGS topographic maps, but does not include contour lines and other standard map symbology. Google Earth is also presented as its own map type. Other types may be added as we continue to refine and improve Terrain Navigator Pro.

If an option on the map type control is grayed out, that scale is not available in the area you are viewing. For example, when viewing a 1:100,000-scale map you might find that the 1:24/25,000 option is grayed out. Since 1:100,000-scale maps cover a lot of ground, you might be viewing coverage for an area outside the state where the corresponding 1:24,000-scale maps are not included.

In addition to using the map type control on the toolbar, the map type can be adjusted by opening the **View** menu and choosing **Map Type**.

Changing Map Editions

Your subscription entitles you to many more map types and editions. These are downloaded to your computer via the Internet, as it would be impractical to deliver them via DVD. When a type is selected (such as **1:12,000 Aerial Photo**) an additional arrow to the right of the selection (on either the toolbar, as pictured here, or in the **View** menu) specifies the *Edition* to be displayed.



The various editions of the map (or photo) will be listed in the pull-out. Select the desired edition, and the map display will refresh to reflect that edition. Some editions may be disabled (as is the case with the 2010 1m Color and 2004 1m Color indicated in this illustration.) This indicates that these editions are available elsewhere, but not at this location.

In the event you have scrolled into an area where the selected edition is no longer available, the *Standard Edition* (see below) of the map will be displayed instead.

There are two special editions. One is the *Standard Edition*. The Standard Edition is the "default" edition of that map or photo. For USGS Topographic

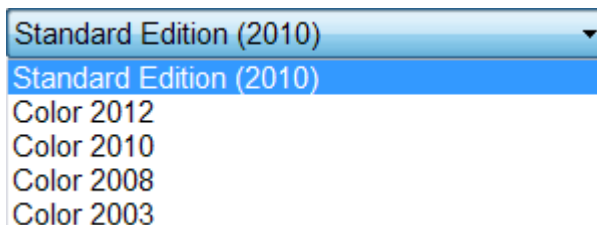
Maps, this will usually be the map that is included on your map disc. For aerial photos, this will most likely be the most recent edition. However, in some cases, a different edition of the map or photo may have been substituted as the standard edition. To check the edition of any map or photo being displayed, use the Information Tool.

The second special edition is *Mixed View*, described later.

The editions listed (other than *Standard Edition* and *Mixed View*) are referred to as *Alternate Editions*. These can be selected at will to display specific versions of the same map or aerial photo. This list is dynamic and will change as we continue to refine and improve Terrain Navigator Pro. Alternate Editions will remain active while your subscription for services is current. When that subscription expires, Alternate Editions not copied to the hard drive will no longer be available. Open the Help menu and choose Register (or call MyTopo at 800-627-7236) to renew your annual subscription.

Notes: Alternate Edition maps and photos must be copied to the hard drive if they are to be used when there is no Internet connection available.

Alternate Editions of USGS Topographic Maps (such as the Shaded Relief) will not include the collar information when displayed in single map view.



The **Alternate Edition selector** provides a quick and easy way to switch between the standard and alternate editions of particular maps and photo. When this map control is enabled in General Preferences, the alternate edition selector will appear in the lower left hand corner of the map window. Simply select the desired edition from those available. Note that the

special *Mixed View* edition, described later, is not available using this control.

Finding Places of Interest

Terrain Navigator Pro's **Find** menu provides several search options to help you find specific places quickly and easily. These options are powered by the GNIS (Geographic Names Information System), a database of place names compiled by the USGS. Each place listed in this database is referenced to its location on the map.

The Find menu lets you search specific categories, including **city** or **town** name, **map** name, **zip code**, etc. **Browse Category** lets you choose from more than fifty geographic categories of terrain features (summits, streams, etc.). Once you have selected a category, Terrain Navigator Pro a list of possible matches for you to choose from. Select a place from the list and click **Open** to view it on the map.



A red circle is drawn around the location you searched for. (To remove the circle, click on it.)

Note: When viewing certain discs, additional categories may be available. You can even add and edit these categories - contact us for the details.

Search All Place Names

If you don't want to limit your search to a specific category, you can search all categories: open the **Find** menu and choose **Search All Placenames** and type a word (or even just a few letters) to search for. Select the best match from the results list, and double-click it see that location on the map.

Replace Active/Open Another

If you already have one map open, your choices are to click **Replace Active**, which will close the active map and replace it with a new one, or **Open Another**, which will open a second map window showing your location of interest. (See working with two map windows for more information.)

Tips:

- To sort the search results list by geographic proximity, click **Nearest 15**. This will shorten the list to just the 15 locations nearest to the map area you're viewing, and give you the distance to each location. The Nearest 15 option is unavailable if you aren't already viewing a map.) You can click **All Items Found** to return to the complete results list, which covers the entire state.
- If you don't want to limit your search to a specific category, you can search all categories: open the **Find** menu and choose **Search All Placenames** and type a word (or even just a few letters) to search for.
- The bottom portion of the Find menu shows the last five places you located using this search function. (This is handy for returning to a recently-visited map.)
- If you can't find the place you're looking for, make sure the correct state is specified: open the **File** menu and choose **Select State**.

Bookmarking Locations

New Bookmark

Bookmark Properties

Name: Mojave Winds

Position:

Latitude: 31 ° 0 ' 9.12 " N

Longitude: 104 ° 48 ' 56.79 " W

Notes:

Biskeborn

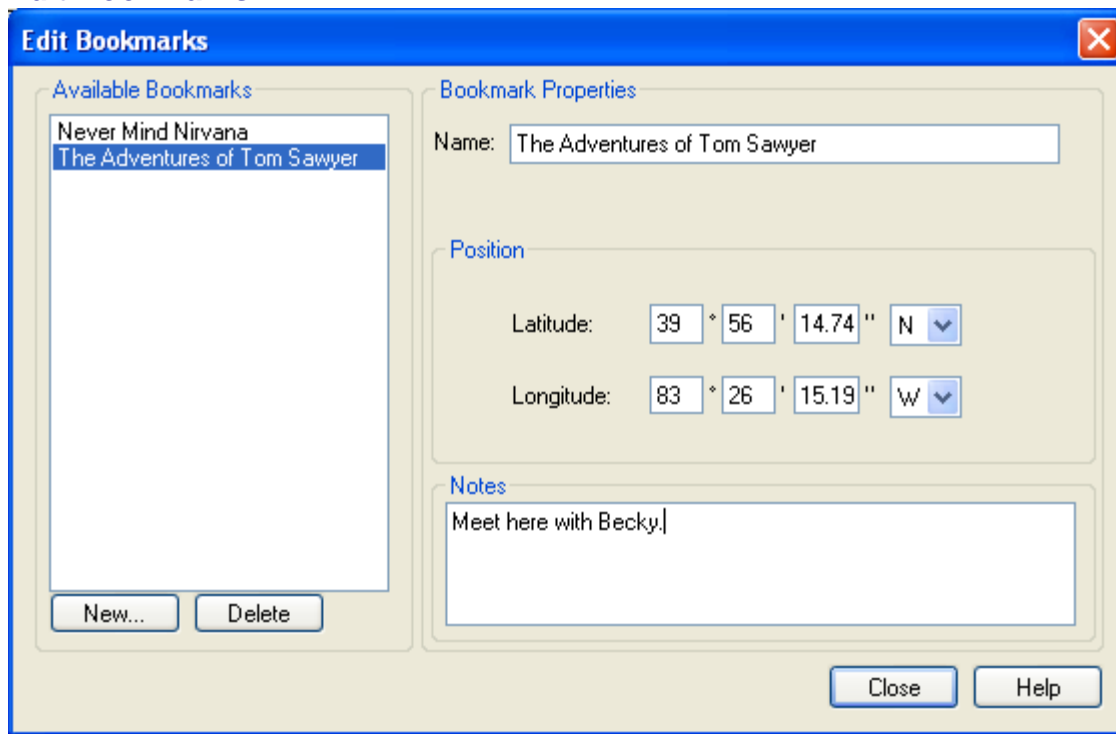
OK Cancel Help

Use bookmarks to keep track of specific locations so you can easily return to them later. When you create a bookmark, Terrain Navigator Pro memorizes the location, zoom level and map scale.

To set a bookmark, click **View > Bookmark this View**, then type a name for the bookmark. The coordinates shown in this window represent the point at the center of the screen. Space is provided to write a note about this bookmark.

To return to this map view later, click **Find > Bookmark** and select the name of this bookmark from the list provided.

Edit Bookmarks



Click **View > Edit Bookmarks** to open the edit bookmarks window. All bookmarks are listed on the left side of the window. Highlight a bookmark to edit it.

Name: Type a new name for the selected bookmark.

Position: Enter new coordinates for the selected bookmark.

Notes: Type a short note for the selected bookmark, or edit the existing note.

New: Create a new bookmark at the same location as the selected bookmark, or type new coordinates to place the new bookmark at a different location.

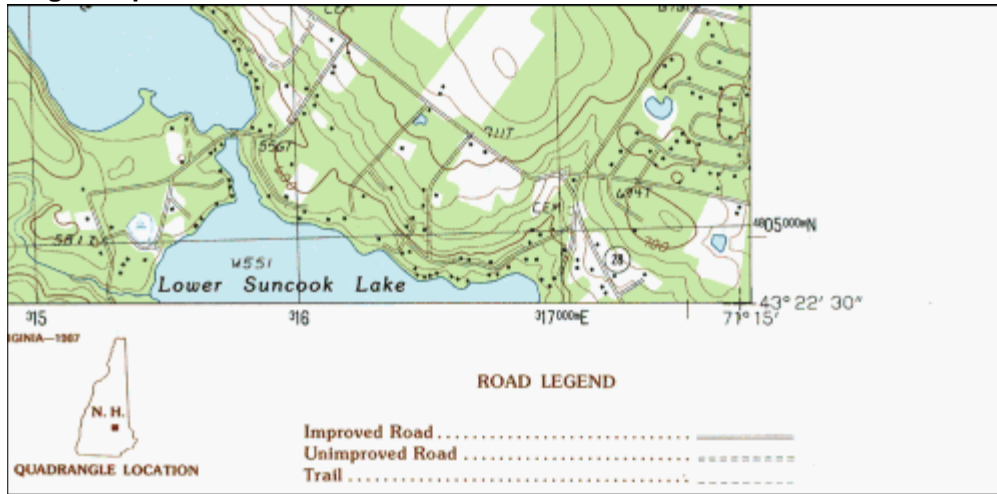
Delete: Permanently delete the selected bookmark.

Close: Save changes and close the edit bookmark window.

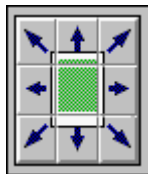
Seamless/Single-Map View

Terrain Navigator Pro has two different modes for viewing maps: *single-map* view, and *seamless* view.

Single-Map View



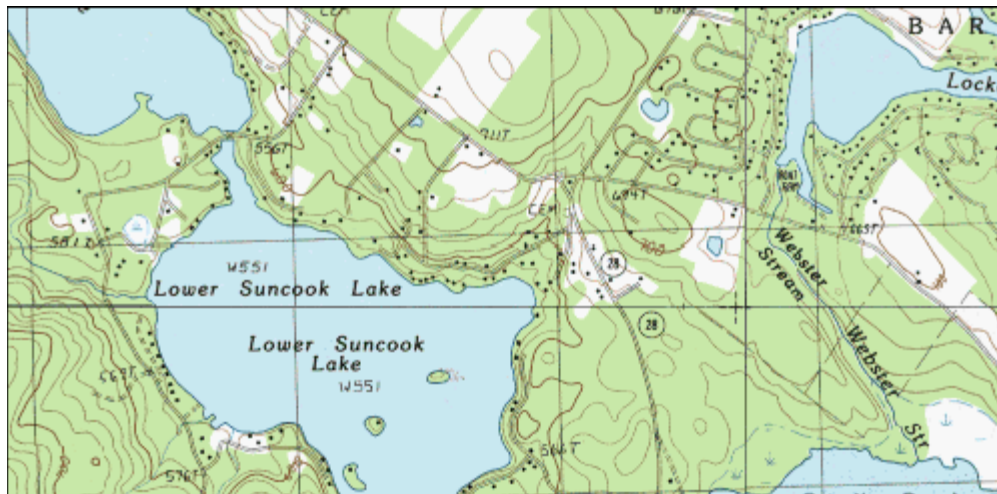
In *single-map* view, the map window contains a single USGS map in its entirety. The white map collar, with its printed data (map title, scale, date, etc.), is included in the image.



While in single-map view, use the adjacent map control located on the left side of the screen to switch to any adjacent map. The square in the center represents the map you're viewing. To switch to the map directly to the north, click the square above center; to move east, click the map directly to the right, etc.

You can also use the Adjacent menu, which lists all adjacent map titles, to select adjacent maps by name. (The Adjacent menu only appears when you're in single-map mode.)

Seamless View



In *seamless view*, the white map collars are removed, and adjacent maps are aligned and "stitched" together, forming the equivalent of one large map (made up of all the individual USGS maps on the CD). This means you can scroll smoothly from map to map, without having to open each map individually. Seamless view also lets you join multiple maps together in a single print image.

Note: When in seamless view, the adjacent map control disappears, and the Adjacent menu is grayed out. This is because in seamless view, you can move from map to map without having to specify which map to open.



Toggle back and forth between these two view modes, using the seamless/single-map toggle button on the toolbar (to the left of the coordinate display). Or, select **Seamless View** or **Single-Map View** from the View menu.

Aerial Photos and Annual Subscription



As a registered Terrain Navigator Pro customer, you have one year of unlimited access to aerial photo coverage for all areas where you have topographic map coverage. By continuing your annual subscription you'll have access to the newest as well as historical aerial photos. These aerial photos, or *orthophotomaps*, are produced by the USDA, USGS, or various other government-sponsored agencies from fly-over photographs. Most are presented at 1:12,000 scale, but scales as large as 1:3,600 are available in some areas.

Your layers—measurements, annotations, etc.—will appear on the aerial photos just as they appear on the topographic maps. You can continue to add layers while you're working with aerial photos.

Like many topographic maps, alternate editions of photos may also be available. Unlike topographic alternate editions, which primarily consist of shaded relief maps, alternate aerial photo editions can consist of different years, and may include black and white or infra-red imagery. For more information, please see the section on Changing Map Editions (in the Zooming In and Out topic.)

Registration and Subscription

Aerial photos are stored online at servers operated for Terrain Navigator Pro. Access to aerial photos requires an Internet connection from the computer where Terrain Navigator Pro is installed. Registered Terrain Navigator Pro customers have unlimited access to photos covering the states purchased. You may view aerial photos over the Internet, or copy them to your hard drive.

When Terrain Navigator Pro is installed, registration usually takes place automatically. If the registration is denied during the installation process, a warning will appear. Please call us at 800-627-7236, Monday-Friday, 9am to 5pm, MountainTime if your registration did not take place. You may also need to contact us when installing Terrain Navigator Pro on a second computer (as provided for in the license agreement) or when moving the installation from one PC to another.

There are many benefits to the annual subscription:

- **Aerial Photos:**
Because it is not practicable to distribute aerial photos on DVD, aerial photos are downloaded automatically from our servers when needed. With the exception of Alaska and parts of Nevada, the entire U.S. is available in a 1:12,000 color photo that was taken within the last 2-3 years. Other photo scales (as large as 1:3,600) are available in select urban areas but may not be as current.
- **Current Street Map Overlay:**
Upon renewal, you will automatically receive a new Installer DVD containing the latest street overlay. Simply install it and your streets and address lookup will contain the latest changes, updates, and corrections.
- **Alternate Edition Photos and Maps:**
Every 1:12,000 aerial photo and 1:24,000 contains one or more alternate edition. For topographic

maps these consist of shaded relief maps whereas alternate editions of aerial photo consist of different years, and may include black and white or infra-red imagery. We intend to expand and improve the quality and quantity of these alternate editions each year.

- **Map and Photo Updates:**
We check with the various mapping agencies to ensure that the most current maps and photos available are included in Terrain Navigator Pro. As long as your subscription is active you are entitled to these updates as they become available. To check for updates, open the **File** menu and choose **Map and Aerial Photo Updates via Web**.
- **Mobile App Synchronization:**
Connectivity between the Terrain Navigator Pro Mobile App and the desktop software is accomplished through cloud synchronization over the Internet. Your subscription keeps this connection in tact.
- **Team Tracking:**
Those with the Enterprise Edition licensing (and an active subscription) can track the positions of each User within the organization using Team Tracking.
- **Software Upgrades:**
From time to time, we will release upgrades to the Terrain Navigator Pro software. So long as the subscription remains current, you will receive these upgrades at no charge. For an idea as to what past upgrades have included, check the topic on What's New.
- **Additional Tiers:**
The annual subscription allows you to expand the capabilities of Terrain Navigator Pro through the purchase of additional tiers. Once purchased, these tiers (such as the Parcel/Land Ownership layer) remain available for the duration of the subscription and can be renewed when the subscription expires.
- **Other Updates:**
Sometimes available by logging into your Registration Account at <http://www.terrainnavigator.com>, other updates may include newer NGS Benchmark Data Sheets, street layers, and Web Links. Additional state-specific updates may also be available.
- **Telephone Support:**
We are generally available Monday-Friday, 9am to 5pm, MountainTime at 800-627-7236 to assist you in making the most of Terrain Navigator Pro. Those without an active subscription may still receive assistance through email (tnp@mytopo.com) or via the online discussion forum at <http://tnp.uservoice.com/knowledgebase/>.

Your initial Terrain Navigator Pro purchase entitles you to one year of access to aerial photos for the region(s) you own, as well as all of these benefits. (Tiers are sold separately.) After the first year, you may extend your subscription if you wish; log into your web account or call 800-627-7236 for details. Should you choose to let your subscription lapse, only photos (and alternate map/photo editions) that have been copied to the hard drive will remain available, connectivity to the Terrain Navigator Pro Mobile App will be lost, no further software or map updates will be obtained, and telephone support will be discontinued.

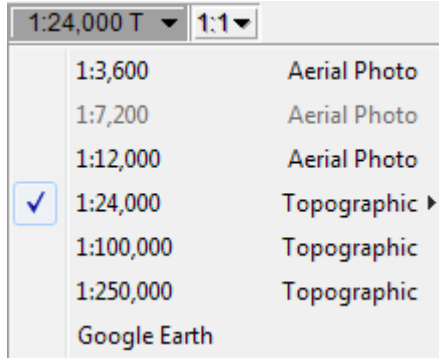
Viewing Aerial Photos

You will need to be connected to the Internet (unless the photos have been copied to the hard drive.) If you are not already connected, Terrain Navigator Pro will prompt you to connect via your usual connection procedure. To select an aerial photo:

- Open a topographic map of the area you wish to view photo coverage for, then from the scale drop-down menu on the toolbar, select a scale ending in "A,"
-or-

- In the Open Map window, set the Map Type to 1:12,000 (or to a larger scale, if available), then select a square from the grid on the state overview,
-or-
- In the **View** menu, select **Map Type**, and specify a scale ending in "A."

Switching Between Topographic Maps and Photos



Use the map type drop-down list on Terrain Navigator Pro's toolbar to switch between maps and photos. A "T" after the scale indicates a topographic map, while an "A" indicates an aerial photo. Other map types may also be available.

Point at Center of Screen Remains the Same

When you first open aerial photo coverage, the photos are displayed at 1:1 zoom level. Since the scale of the photos is more detailed than the topographic maps, you may find that you're viewing less area when you first switch to a photo. It may help you "keep your bearings" to remember that the point at the center of the screen is still the same.

Finding Out When an Aerial Photo Was Taken

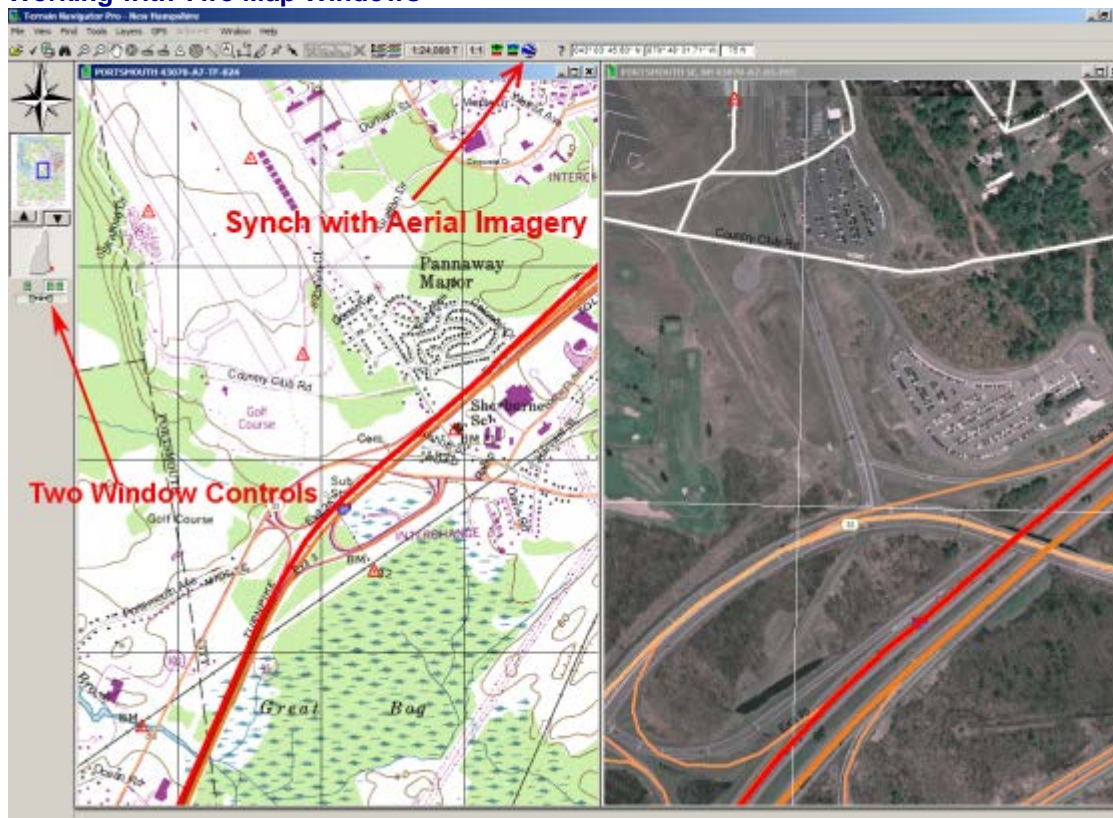


Select the information tool from the toolbar, then click anywhere on an aerial photo to get technical details, including the approximate date of the flyover when the photograph was taken. The alternate edition selector in the lower left hand corner of the map window will also indicate the year of the aerial photo being viewed.

Downloading Aerial Photos to the Hard Drive

Just like topographic maps, aerial photos may be copied to your hard drive, by opening the **File** menu and choosing **Map/Photo Management**, for your state. This will allow access to the photos if you no longer have Internet access - or if you choose not to renew your annual aerial photo subscription.

Working with Two Map Windows




Terrain Navigator Pro can display two map windows at once. This allows you look at two separate geographic areas, two map scales for the same area, or a topographic map, aerial photo, and/or Google imagery - both on the screen at the same time. You can also view two copies of the same map at different zoom levels.

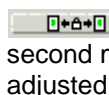
Opening a Second Map Window

To enable *two-window mode*, open the **Window** menu, select **Two-Window Mode**, or use the buttons found in the compass bar on the left side of the screen. (Use **General Preferences** to hide or show the compass bar.)

These three buttons let you switch between one window mode, two-window mode, and two-window mode Locked.


 **One map window (standard mode).**

 **Two map windows.** Both windows can be panned independently, to show different geographic locations.

 **Two map windows, locked.** Panning the map in one window automatically moves the second map accordingly, to show the same location at all times. Zoom level and map scale may be adjusted as desired.

When a second map window is opened, it will automatically show the same view as the first window. You can adjust settings like zoom level and map scale separately for each map window. You can also set the second window to show a different area, except when the windows are locked as described above.

Synch with Aerial Imagery

 Press the Synch with Aerial Imagery (Earth button) on the toolbar to automatically open a second map window and lock it to the first. The type of imagery used can be specified in **File, Preferences, Google Earth**. This provides a one-click shortcut that is very useful when viewing USGS topographic maps along side aerial imagery (from either Google Earth, or the Aerial Photos included with the annual subscription.)


Viewing Layers

When viewing the same area in both windows, any layers added to one map will show up on both. Use the Layer Toggle button to show layers in one window and hide them in the second window. (Note: when synched with Google Earth, only **new** layers placed will appear in the Google Earth window. To show an existing layer in Google Earth, right click on that marker, route, or track and Send to Google Earth.)

Other ways to activate Two-Window mode:

- When using the Map Selector, select a map and click **Open Another**.
- When using the **Find** menu, click **Open Another** and the location you want will be opened in a separate window.

Working in Two-Window Mode

Use the **Window** menu to arrange map windows: choose **Tile Horizontally** to share the screen side by side, **Tile Vertically** to arrange maps one above the other. **Swap Windows** will trade positions with each other and **Close Active Window** will remove the active map (see below) from the display and exit Two-Window mode. You can also use the close map button:  in the upper right hand corner of the map window to close it. Finally be sure to check the slider control that appears as you cursor between the two windows; use it to resize the two windows revealing more of one and less of the other.

Two-Window mode is also very useful when split with a 3-D window.

The "Active" Map Window

With two map windows open, one is the *active* window and the other is *inactive*. The active map window is the one you were last working with, whose title bar is highlighted. Commands such as Print, Zoom In/Out, Seamless View, 3-D View, etc. are automatically applied to the active map window. If you have only one map window open, that window is the active window.

Replace Active/Replace Inactive

Any command that requires opening a map during two window mode gives you two choices: **Replace Active** and **Replace Inactive**. These two choices appear as buttons in the map selector window and in all of the "Find" windows. You can decide whether the new map should replace the *active* map window, or the *inactive* map window.

The default selection is Replace Active. If you don't choose either button - for example, if you just press the **Enter** key on your keyboard after using the Find menu, or if you open a map by double-clicking a map square in the map selector grid - the new map will automatically replace the active map window.

Tip: The tools for creating Routes and Tracks, along with the Distance Tool, can all be used across two map windows. This can be handy for creating a route that spans a long distance.

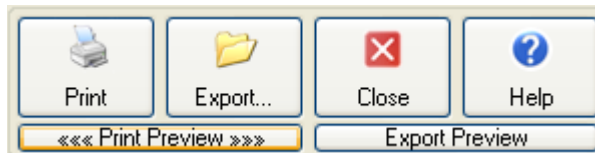
Printing Maps: The Basics

Introduction

Terrain Navigator Pro includes many features to present, work with, and create various types of maps. Once you've made a set of Layers you may want to share your creation with others. In some cases, this may be as simple as pressing the Print button and passing along a page taken from an ink-jet printer. Maybe you'll want to create something more complex - including a legend or corporate logo. And, in this era of the paperless office, maybe you'll wish to attach your masterpiece to an email - or include it in a presentation. All of these printing and publishing options are at your fingertips with Terrain Navigator Pro.

Getting Started with Printing and Publishing

To print some or all of the map on the screen, open the **File** menu and choose **Print** (or press the Print button). This opens the Print Window. The Print Window is divided into 2 halves: the left side is used to design the finished page, the right side is a live preview of that page.



The left side of the Print Window has four operations buttons across the top: *Print* - press it to send the map to the printer, *Export* - for saving the map as an image file, *Close* - to exit the Print Window, and *Help* - which opens this help page. There are also two buttons that determine the type of preview that is being shown to

the left: the *Print Preview* depicts what the map will look like when sent to a printer or printer-like file (such as a PDF document), the *Export Preview* depicts the map as it will appear when saved to an image file (such as a JPG) that may be included in a report, or attached to an email.



In the upper left hand corner of the Preview Area, you will find a 3-way toggle button that changes the *Zoom* of the previewed output. All fits the entire page (or pages) into the Preview Area, 1:1 displays the page at the exact resolution as the finished product (monitor calibration may be required), and 2:1 doubles the actual size - for making fine adjustments to the finished page.

As you explore the various tools, buttons, and options, you'll discover that if you hold the mouse cursor over any control, a brief "Tool Tip" will appear that explains the action of that particular function. These descriptions, when used in conjunction with this document, will help you navigate the seemingly endless options available to you for the layout of a printed page.

Creating a Simple Printed Map

While Terrain Navigator Pro is designed with unprecedented print and publishing capabilities, creating a simple map of the area is easy to do. Open the **File** menu and choose **Print** (or press the Print button) to open the Print Window. In the preview area, you will see your map exactly as it will appear on the printed page. Use the hand tool to drag the position of the map accordingly. You will see that the default settings (called *Templates* - more about those later) has a margin around the edges and includes a ruler with gridlines and a scale bar.

Some things you may wish to do with the default template:


To extend the map past the margins, set the *Zoom* to All and click on the map page block. Notice that this is the same as clicking on the *Map* in the list of *Page Blocks* in the *Properties* tab. (The map is one of many types of Page Blocks.) The map will now have 5 control points along its edge that appear as little black boxes. Click one of the control points and drag it. Notice that the map will shrink and expand

depending on where you drag the control point. Use the control points along the edge of the map to extend (or contract) the map to the desired shape.

To turn off the grids, set the *Zoom* to All and click on the map page block. This is the same as clicking on the *Map* in the list of *Page Blocks* in the *Properties* tab. In the **Properties** tab, notice the *Grid style* setting. Change the Grid style to **Ruler Only** to remove the grid lines (but keep the ruler along the edge) or **No Ruler** to remove both the ruler and gridlines.

To zoom in or out on the map or change the area of the map shown on the final printed page, set the *Zoom* to All and click on the map page block. This is the same as clicking on the *Map* in the list of *Page Blocks* in the *Properties* tab. In the **Properties** tab, notice the *Size* setting. Here you can specify the scale as a ratio (such as 1:24,000) or as a percent of the scale of the original map. For a quick adjustment, set the *Size* to **Percent** and then adjust the percentage. A larger percentage will zoom the map in, a smaller percentage will zoom the map out. Press **Update** to see how those changes will appear on the final printed page.

To change or remove the map scale bars, set the *Zoom* to All and click on the scale bar page block. This is the same as clicking on the *Scale* in the list of *Page Blocks* in the *Properties* tab. (The *Scale* block is one of many types of *Page Blocks*.) Adjust the various *Properties* to change the appearance of the scale bar.

To remove the scale bars all together, press the Delete key or the Delete Button:  on the list of available *Page Blocks*.

To change which layers are included on the printed page, set the *Zoom* to All and click on the map page block. This is the same as clicking on the *Map* in the list of *Page Blocks* in the *Properties* tab. Check **Print layers** to include layers on the map, uncheck **Print layers** if you do not want to include any layers. If you want to include only some of your layers, press **Select layers** to indicate the types of layers you wish to show or hide. An in the list of layers indicates that the layer will be included on the final printed or saved image.

To print to a different printer, click the Printer/File tab. In the Printed Page Layout section, select the desired **Printer** from the list of printers available.

Once you are satisfied with your settings, press **Print**. The map will be sent to your printer and will appear exactly as shown in the preview area.

Advanced Printing and Publishing

The brief tutorial outlined above only begins to scratch the surface of all of the various possibilities to present your maps to a larger audience through a printed page, or by an electronic image. To learn more, select one of the topics below:

Page Blocks

Page Blocks sit at the heart of the print features of Terrain Navigator Pro. A Page Block is simply an area of the final page that is set aside for a special purpose. Each Page Block has its own shape and properties, and can be one of nine types: Artwork, Compass, Legend, Map, Overview, Profile, Scale, Summary, and Text.

Adjusting the Map & Working with Grids

Of all the various types of Page Blocks, the Map Page Block is the most important. (After all, that is what you are creating and using within Terrain Navigator Pro - a map.) Use the Map Page Block properties to adjust precisely how the map appears on the finished page.

Printing Layers and Layer Information

Layers are anything added on top of the base map. Some layers (such as markers, routes, and tracks) you create yourself. Others are included as supplemental data sets for Terrain Navigator Pro. Regardless of where they came from you can include them on your printed maps and published images.

Multi-Page Maps

Terrain Navigator Pro can be used to print a large map area - larger than the paper sizes supported by your printer. When printing across multiple pages, these printed papers can be fastened together to create a map of any proportion.

Creating a Legend

A *Legend* or Map Key is used to indicate what the various symbols on the map mean. A Legend consists of a table with one or more items, such as a piece of text (such as a title), a symbol denoting a marker or waypoint, a line such as a track or route, or a filled area. Use the Legend Page Block Properties to add new items to the Legend table and format them to the desired appearance.

Adjusting Your Printer Settings

Terrain Navigator Pro can send its maps to a wide variety of printers (including virtual printers, such as PDF files.) Because each printer has unique characteristics, such as the type of papers it can print to, there are controls to specify these various options.

Formatting and Positioning Page Blocks

Page Blocks are the heart of Terrain Navigator Pro's unique ability to create customized pages for print and export. Because of the flexibility of these features, special controls are available for precise positioning of Page Blocks.

Publishing a Map as a Document, Email, PDF, or Image

In the world of the "paperless office", more and more documents are being viewed and stored electronically - rather than relying on the printed page. These electronic documents take a variety of forms including email, PowerPoint presentations, word processing documents, and PDF files. Terrain Navigator Pro contains a unique set of features that make publishing maps onto a virtual page a snap.

Templates

Templates are a set of stored settings that can be applied to your printed or exported map image. Basically, every option specified in the Properties, Pages, and Printer/File tabs can be saved as a template and recalled for future use. For example, if you have a basic report format that you use often, you can set up a template with these settings and open that template when you wish to print that style of report.

Quick Print

The *quick print* command provides a shortcut to your most common printing task. By default, it prints the map area shown on the screen (filled out to the margins on your printer.) However, it can also be used to perform a variety of printing tricks when used with Templates.

Notes:

A variety of page formats and sizes are available. Large-format plotters can be used to print full-size USGS quads at the same scale as the originals.

Some older laser printers may have difficulty printing a full map at their highest quality setting. This is because printing a full-page graphic is very taxing on a printer's memory. If this should occur, set the printer properties to print at a lower quality (or DPI) setting. If necessary, contact your printer's manufacturer to find out how much memory your particular printer model requires in order to print a full-page graphic.

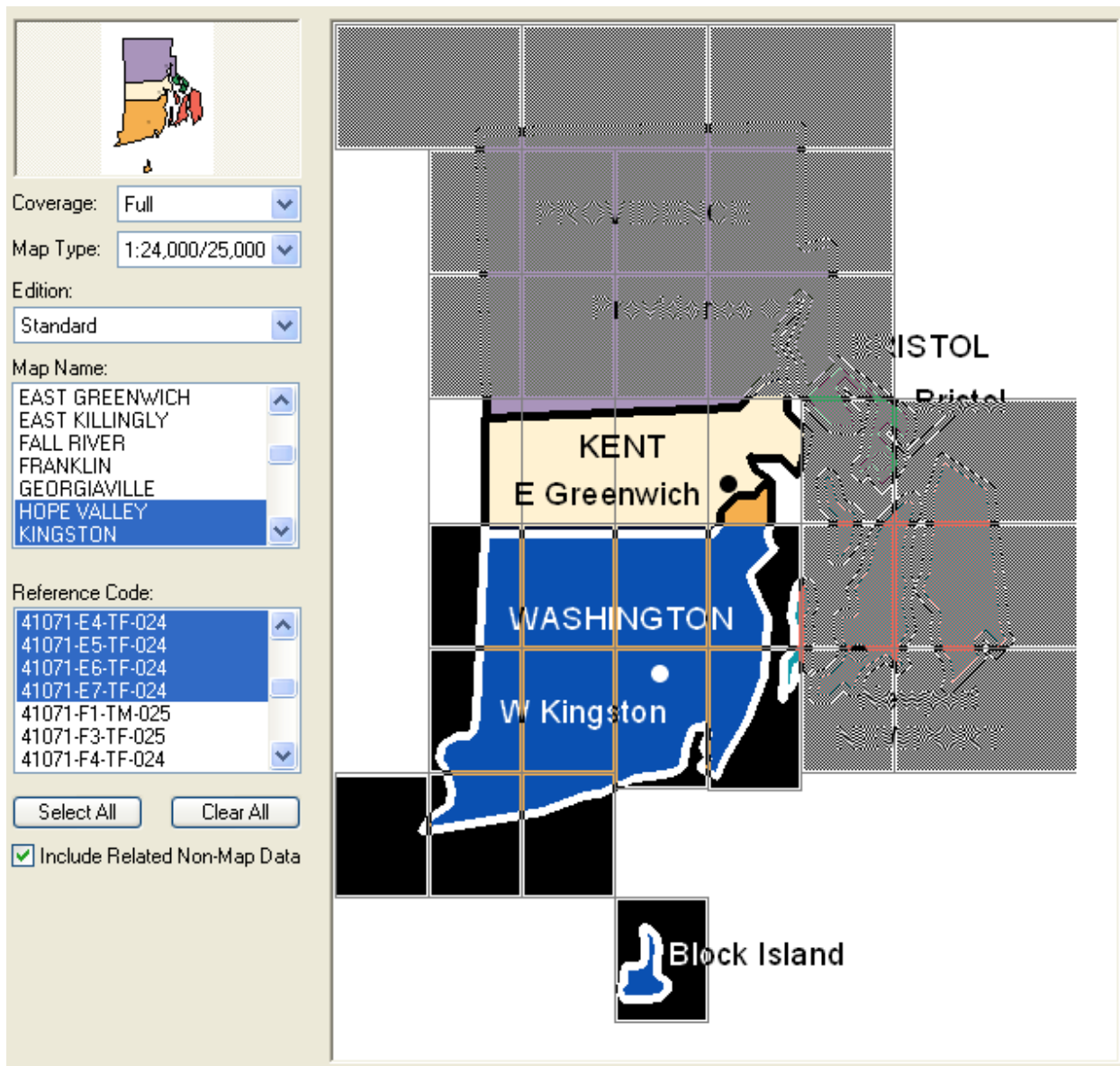
In order to be consistent between 1:24,000- and 1:25,000-series maps, and to ensure that adjacent maps align properly, all 1:25,000-series maps are printed at 1:24,000 scale (when scale is set to 100%).

Use the **Sizing** slider in the Map page block Properties to adjust the relative size of the markers, routes, labels and other layers on the printed map. This is especially useful when changing the scale/zoom of the map.

Map/Photo Management: Copying Maps and Photos to the Hard Drive

Terrain Navigator Pro allows you to copy maps to your hard drive. This can take two separate (but related) forms. First, this allows you to store the maps/photos for your state so that the DVD discs are not required for use. The second option allows you to "share" maps across state boundaries to provide a seamless view of a multi-state area.

Open the **File** menu, choose **Map/Photo Management**, and select **for your state**. This opens a state overview that looks similar to the map selector. Highlight the maps you want to copy and click **OK**. The maps you choose will be copied to your hard drive.



- Start by selecting the **Coverage** area. **Full** coverage will display the whole state. In some cases (like Rhode Island) the grid size will be quite usable. However, in other states (such as Texas or California) the grid and text will be too small to be usable. In these cases, try the **Uniform Grid** coverage area. Use the scroll bars or the blue box to position the map. Or, hold the CTRL key and pan the map with the mouse.

- Select the desired **Map Type**. Different scales of topographic maps and aerial photos will be available.
- Choose the map **Edition**. Standard and Alternate editions are available for most popular map types.
- Maps can be selected by clicking on their grid position, or by clicking in the **Map Name** or **Reference Code** list. Use down the **Shift** or **CTRL** key on your keyboard to highlight multiple maps in the Map Name or Reference Code lists. Maps to be copied will appear highlighted in a complementary color in the map grid, and selected in the Map Name/Reference Code list. In the above example, the southwest portion of Rhode Island has been selected to be copied to the hard drive when OK is pressed. (The color of a selected map in the grid varies as necessary so that it is easy to distinguish against the multi-colored background, where each county is shown in a different hue.)
- Maps already copied to your hard drive will be shaded in grey in the map selector. In the above example, northern and eastern Rhode Island has been previously copied. (Note: Maps already copied will not appear selected in the Map Name or Reference Code lists - only maps that will be copied when OK is pressed will appear selected in those lists.)
- Click **Clear All** to clear your map list and start over. Note that this will also DELETE any maps already copied to the hard drive!
- Click **Select All** to copy all maps (of the current map type) on the discs (or from the Internet) to your hard drive. Previously copied maps will not be re-copied.
- Press **OK** to copy the selected maps to the Hard Drive. In the above example, the maps in the southwest corner of Rhode Island will be copied to the hard drive. These will be added to the ones in the north and east, which were previously copied. Maps in Kent county will not be copied to the hard drive - but will remain accessible from the Professional USGS Topographic Series disc for New England (or from the Internet.)

Include Related Non-Map Data:

Check here, and in addition to the map image, Terrain Navigator Pro will also copy elevation and NGS (National Geodetic Survey) data. This is necessary for storage of all databases required to fully use Terrain Navigator Pro; otherwise some features may be limited when the CD/DVD is not in use. (For example, when the elevation data is not present, the 3D view will be disabled.) Copying related non-map data is usually done automatically during the initial configuration process for the state - so it is not normally necessary to check this box.

Copying (Downloading) Aerial Photos

To copy aerial photos (via download from the Internet), set **Map Type** to "1:12,000" (or to a larger scale, if available). This will display the photo grid, where you can select which photos to copy. Note that an Internet connection and active maintenance subscription are both required to download aerial photos to the local machine. Because of the massive amounts of data, it may take several minutes to copy each photo from our servers. (For most high-speed connections, this will approximate up to 10 minutes per standard edition aerial photo.)

Copying (Downloading) Alternate Editions of Maps and Photos

To copy an alternate edition of a map or aerial photo (via download from the Internet), set the **Edition** to the desired edition. For example, different years of an aerial photo may be available, or maybe a shaded relief edition of a USGS topographic map. Note that an Internet connection and active maintenance subscription are both required to download aerial photos to the local machine. Because of the massive amounts of data, it may take several minutes to copy each map from our servers. (For most high-speed connections, this will approximate up to 15 minutes per alternate edition map/aerial photo.)

Note: The grid representing alternate editions of aerial photos and topographic maps may not be a true indication of the availability of a particular alternate edition. For example, aerial photos from 2008, 2009, and 2010 may be shown in the Edition list. This indicates that there are photos in the vicinity for each of those years. However, they may be available for only a portion of the state. In a common example, 2008 may be available along a state's northern border, 2010 may be available along the state's southern border, and 2009 may be available throughout the entire state.

If you select grid for an alternate edition that is not actually available, Terrain Navigator Pro will download the Standard Edition of the map/photo instead (if it has not been downloaded already.) This guarantees that at least one edition is available off-line, even if it is not the desired one.

Deleting Maps and Photos from Your Hard Drive

Maps and photos that are already present on your hard drive are shaded gray. To delete a map or photo from your hard drive, click on the gray grid square. The square will turn transparent.

Click **OK** to start the copying/deleting process. You can copy maps to, and delete maps from, your hard drive in a single step. Depending on how much data you're copying, this process may take several minutes. When the process is complete, a message will appear on the screen, noting how many maps were copied or deleted. (Example: "Copied 8 maps to the hard drive. Deleted 3 maps from the hard drive.")

Maps from Bordering States: Copy Maps Across State Boundary

If you copy maps from bordering states using **File, Map/Photo Management, Across State Boundary**, the maps will appear in the map selector window for the bordering state. This gives you access to the maps without requiring that you switch to the state that originally contained that map.

Mouse Shortcut Also Available

For a quick and easy way to copy the map (or photo) shown on your screen to your hard drive (regardless of the edition, type, scale, etc.) **right click** on the map and choose **Copy this Map to Hard Drive**.

Copying Topographic Maps Without the Professional USGS Topographic Series Disc

In the event you are without the Professional USGS Topographic Series disc for your state, you can copy the maps it contains from the Internet. Open the **File** menu and choose **Preferences, Internet Access and Map Cache**. There, enable the option to **Retrieve topographic maps from the Internet (when not copied to the hard drive.)** Return to **File, Map/Photo Management, Across State Boundary**, and select the maps you need.

Note that an Internet connection and active maintenance subscription are both required to download USGS topographic maps to the local machine. Because of the massive amounts of data, it may take several minutes to copy each map from our servers. (For most high-speed connections, this will approximate up to 10 minutes per USGS topographic map.)

Updating Maps and Photos via the Internet



Terrain Navigator Pro lets you check for updated topographic maps and aerial photos via the internet, and download any new versions available. To check the servers that power Terrain Navigator Pro, open the **File** menu and choose **Map and Aerial Photo Updates via Web**.

You have two options for checking for updated maps/photos:

- **Update all maps/photos on hard drive:** Terrain Navigator Pro will check for available updates for all the topographic maps and aerial photos copied onto your hard drive. Any new versions detected will be downloaded.
- **Update only maps/photos contained in current state:** Terrain Navigator Pro will only compare dates for the topographic maps and aerial photos from the state you are presently working with. This option can save time if you're only interested in a particular area of coverage.

Note that this option does not check for updates to the main Terrain Navigator Pro application. To do this, refer to the **Internet and Map Cache Preferences**.

General Preferences

Use the Preferences button and select the General category to adjust the various settings and configuration options in Terrain Navigator Pro. Alternatively, you may open the **File** menu and choose **Preferences, General**. In addition to map view settings, the general preferences window contains options for adjusting the appearance of the Terrain Navigator Pro window and the toolbar, and other options described here.

Additional configuration options for setting the display of coordinates, bearing, time, and elevation display can be found in the Coordinate Preferences window.

Toolbar and Dashboard Controls

Toolbar and dashboard controls

Show Toolbar Buttons: Smaller size

Show Compass Bar Larger size

Show GPS status line Show Mouse Swap button

Show Dashboard: ▼

Check the controls you want to show; uncheck the ones you want to hide from view. (Removing controls increases map display area.)

Toolbar: The row of buttons along the top of the window (just underneath the menu bar).

Compass Bar: The compass bar is the panel along the left side of the window, which contains the compass rose, map overview, state overview, one-window/two-window buttons, and adjacent map selector.

GPS Line: An extra Help line that comes into view when your GPS is connected. It provides notes on your connection status and the tasks your GPS is performing.

Dashboard: The gray area along the bottom of the screen. Hold your cursor over a menu item or a control and check the dashboard for tips and notes about that function. On the right, status indicators keep you apprised of your Internet connection, GPS tracking, availability of alternate editions, project synchronization, and subscription. (A color key is provided below.) Also, a thermometer appears across the dashboard whenever a map or photo is being downloaded from the Internet.

GREY - *This option is off or not available.*


GREEN - *This option is on and working correctly.*

YELLOW - *This option is working correctly, but with limited functionality. (For example, the subscription is about to expire.)*

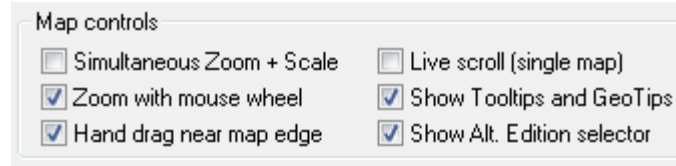
ORANGE - *This option is experiencing an error that can be corrected with intervention. (For example, the Internet preference is turned off or the subscription has expired.)*

RED - *This option is experiencing an error that is outside of its control. (For example, the Internet is unavailable or the GPS has unplugged.)*

Button Size: Adjusts the size of the toolbar, compass control bar, and dashboard. To adjust this setting, your screen resolution must be set to 1024 x 768 or higher.

 **Mouse Swap:** Check this box if you are running Terrain Navigator Pro on a touch screen. When this option is activated, the mouse swap tool will appear on the toolbar. If you need to access a right-click menu, touch this tool first. This will put Terrain Navigator Pro in right-click mode. Touch the screen and the appropriate right-click menu will appear. The mouse swap button will switch back to normal mode after the screen is touched once. When the tool is in right-click mode the right button on the icon will turn red.



Map Controls



The map controls determine how the mouse is used to move about the map.

Simultaneous Zoom + Scale:

Check here to allow the zoom function to also switch map scales as necessary to provide the

requested view. This affects the Zoom In  or Zoom Out  buttons on the toolbar as well as the zoom in/out commands that pop up when you click directly on the map image. When this is checked, Terrain Navigator Pro will adjust zoom level as requested until the zoom limit is reached, and will then switch to a larger- or smaller-scale map (if available) to provide the view you want.

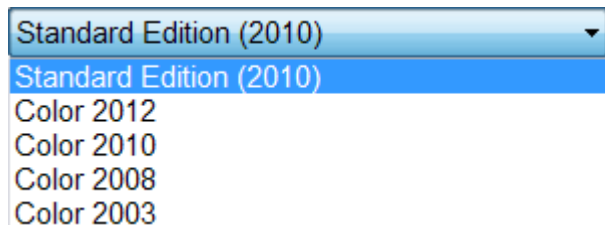
Zoom with mouse wheel allows you to use the wheel between the left and right mouse buttons (on compatible devices) to switch between zoom levels and map scales.

When **Hand drag near map edge** is selected, the mouse cursor will always change to the hand/drag tool when placed near the edge of the map display. This allows you to move the map to a new area of interest. When the cursor is removed from the edge of the map display, it will change back to whatever tool you were using.

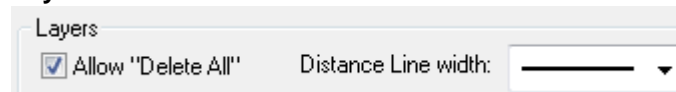
When **Live Scroll** is activated, the map picture is updated instantly when the scroll bars are used to move about the map. Without live scroll, updates occur only after the mouse button is released. Live scroll is recommended if you're using a PC with a fast screen update. Live scroll only applies to Single-Map view.

Tooltips and GeoTips: *Tooltips* are the little yellow text "flags" that appear at your cursor position when you hold the cursor over a toolbar button or other control. Tooltips help you distinguish buttons and serve as reminders of different program functions. *GeoTips* are special tooltips that show location information as you hover over an object. For more information, see the topic Using GeoTips.

The **Alternate Edition selector** provides a quick and easy way to switch between the standard and alternate editions of particular maps and photo. When this map control is enabled, the alternate edition selector will appear in the lower left hand corner of the map window.



Layers



Allow Delete All

Check here to enable the ability to delete ALL items of a selected layer type at once. For example, when this option is checked, you will

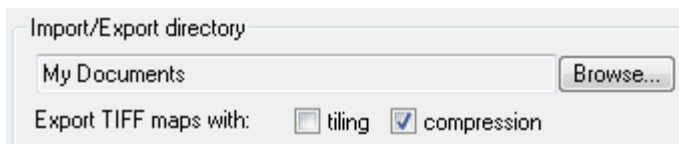
be able to delete all your markers with a single command. Once Delete All is checked, select a layer type from the Layers menu, and in the window that appears, click the Delete button (in that window) *while holding down the Shift key on your keyboard*. A final confirmation message will appear, asking if you are certain you wish to delete all layers of that type, before the data is permanently deleted.

IMPORTANT NOTE: Once your layers are deleted, they cannot be retrieved. To guard against accidental deletions, this extra step has been added here in the General Preferences window as a safeguard.

Distance Line Width

Set a line width for measurements made with the distance tools. This size can be further refined using the Layer Size/Visibility command in the View menu.

Import/Export Directory



Terrain Navigator Pro reads and saves public information (such as maps, layer exchanges, archived projects, etc.) to your My Documents folder by default. To specify a different directory, use the **Browse**

button.

TIFF Export Options

These settings apply to maps and photos exported as TIFF files using the **Export Active Map** or **Export Multiple Maps** functions found in the **File** menu. A **tiled** TIFF file is broken into separate internal "chunks" of 320x240 pixels; a TIFF that is not tiled consists of a single internal image.

When **compression** is used to create the TIFF image, the PackBits method is employed to reduce the overall file size of the finished image. (See note below regarding aerial photos.)

Consult documentation of the application that is importing the TIFF image to determine which export options are most compatible with that application. For example, many traditional image editors and viewers do not support tiling, but this option is compatible with many GIS applications.

Notes: The PackBits compression method is optimized for use with 256-color images, such as the basic topographic maps included with Terrain Navigator Pro. Applying PackBits compression on 24-bit color images (such as aerial photos) will likely not result in any meaningful change in file size. In fact, a "compressed" aerial photo exported from Terrain Navigator Pro may occupy more disk space/memory than an uncompressed photo. Thus, we recommend only using compression when exporting topographic maps.

Many applications do not support tiled TIFF images. Be sure to only use tiling if you are certain that the application you are exporting images into supports tiled TIFF images.

The DRG (FGD) TIFF export format is designed to emulate the Digital Raster Graphics available from the USGS. Since DRG TIFFs are not tiled, the tiling option will not take effect when exporting as a TIFF DRG image.

Coordinate Preferences

Primary Coordinate Display Format: <input type="text" value="D° M' S''"/> Datum: <input type="text" value="WGS 84"/>	Bearing Display Declination: <input type="text" value="Grid"/> Format: <input type="text" value="Quadrant"/> Units: <input type="text" value="D°"/>
Alternate Coordinate Display Format: <input type="text" value="TSR Section"/> Datum: <input type="text" value="NAD 83"/>	Time Display <input type="radio"/> Local <input checked="" type="radio"/> UTC

Configure your coordinate-related preferences (including bearing and time) by opening the **File** menu and choosing **Preferences, Coordinate**. Preferences for Units (such as elevation, distance and area) are found in Unit Preferences.

Primary Coordinate Display

Terrain Navigator Pro can display coordinates in various formats.

Latitude Longitude

Degrees Minutes Seconds (D° M' S")

Example: 43° 02' 08" N 070° 50' 36" W

Degrees and Decimal Minutes (D° M.M')

Example: 43° 02.141' N 070° 50.596' W

Decimal Degrees (D.D°)

Example: 43.0358203° N 070.8439019° W

Universal Transverse Mercator (UTM)

The UTM system uses an imaginary grid of equidistant, perpendicular lines, to divide the globe into 60 zones. Position is indicated in meters within a zone.

Example: 19 03 49 787 E 47 66 227 N

Military Grid Reference System (MGRS)

US National Grid (USNG)

Uses a standard-scaled grid square, based on a point of origin on a map projection of the Earth's surface in an accurate and consistent manner to permit either position referencing, or the computation of direction and distance between grid positions. Terrain Navigator Pro allows you to specify 1 meter, 10 meter, 100 meter, and 1 kilometer MGRS grid intervals. Grid positions are calculated based on the MGRS-3 specification.

With one exception (the use of the NAD27 datum), the MGRS coordinate system is functionally interoperable with the **National Grid** system (or **USNG**)

1-Meter Grid Example: 19TCH4978766227

State Plane

Uses the various projection parameters specific to each state to calculate the State Plane

coordinates. Support for both feet and meter grids are included.

Example: 15805288 ft. N 10271050 ft. E

Township/Range (PLSS) System (TRS)

Uses a rectangular grid system based on a principal meridian and a base line and divided into townships, sections and parcels.

Township Example: T0370N R0090W CO NM

Section Example: Sec 01 T0360N R0090W CO NM

Parcel Example: NW NW Sec01 T0360N R0090W CO NM

To search for a particular township, section or parcel, use the Find Coordinates feature.

Datum

Select a datum for use in calculating coordinates. It is important to know the datum of any coordinate data before relying on it for navigation. Terrain Navigator Pro can display coordinates in the following three datums:

NAD27: North American Datum of 1927

NAD83: North American Datum of 1983

WGS84: World Geodetic System of 1984

You may also specify **Local**, which will cause Terrain Navigator Pro to default to whatever datum was used in creating the map you are viewing. (Note: This setting is not available in seamless view, since the seamless map display may encompass more than one map title.)

Alternate Coordinate Display

If you wish, you can view your coordinates in two different formats at the same time. Using the Alternate Coordinates drop-down menu, select a second coordinate format. The alternate coordinates will display on the toolbar. The options for the Alternate coordinate display are identical to the Primary coordinate display - as described previously.

Bearing Display

Declination

Specify whether Terrain Navigator Pro should calculate bearings from **True North**, **Magnetic North**, or **Grid North**. (See the topic on Magnetic Declination for important notes on Terrain Navigator Pro's magnetic north calculation.)

Format

Select the format for the bearings:

Azimuth: Bearings are given in 0° -360° measurements. Angles are measured clockwise from North. Therefore East is 90°, South is 180° and West is 270°.

Quadrant: In this format, the bearing is divided into four quadrants: NE, SE, SW, and NW. North and south are at 0°, and depending on the quadrant, angles (up to 90°) are measured away from north or south (whichever is nearer) towards East and West directions. Example: Since Northeast (NE) is 45° towards east of North, the quadrant notation format is N45°E (read North-45 degrees-East.)

Bearing Units

Select the units of measurement for bearings:

D° M' S": Degrees, Minutes, Seconds

D° M.M': Degrees, Minutes

D.D°: Decimal Degrees

D°: Degrees (rounded to the nearest whole number)

Time Display

Terrain Navigator Pro

Select **Local** or **UTC** to indicate how you wish Terrain Navigator Pro to format time. Local time is determined by your computer's internal clock. UTC is Coordinated Universal Time, which set on a world-wide standard.

Working with Layers

About Layers

The term *layer* refers to anything added to the map image. For example, Terrain Navigator Pro includes a benchmark layer, with symbols for all NGS benchmarks in your region(s), a custom grid layer, and a street map layer. You can create other layers yourself, including annotations (GeoPins and labels), GPS-related data (markers, routes and tracks), and measurement tools (range rings, range/bearing lines, and the distance tool). GIS Professionals can import Shapefile, DXF, and KMZ datasets as Overlays for viewing on Terrain Navigator Pro's maps and photos. Some layers, such as Parcel Land Ownership, are available as optional tiers to your annual subscription.

Organize Your Layers with Projects

Every layer you create is stored in a Project. A project is a set of layers. By storing your layers (markers, range rings, tracks, etc.) in different projects, you can group and organize your layer data. This is a very powerful and useful feature.

Saving Layers


To save all of your layers, open the **File** menu and choose **Save Active Project**. This will save all the layers you have created in the active project. However, this step is generally unnecessary, since projects (and the layers they contain) are automatically saved (and archived) every time Terrain Navigator Pro is closed. Save Active Project is only required when using Terrain Navigator Pro in an unstable computing environment - where the software (or the computer) may terminate unexpectedly.

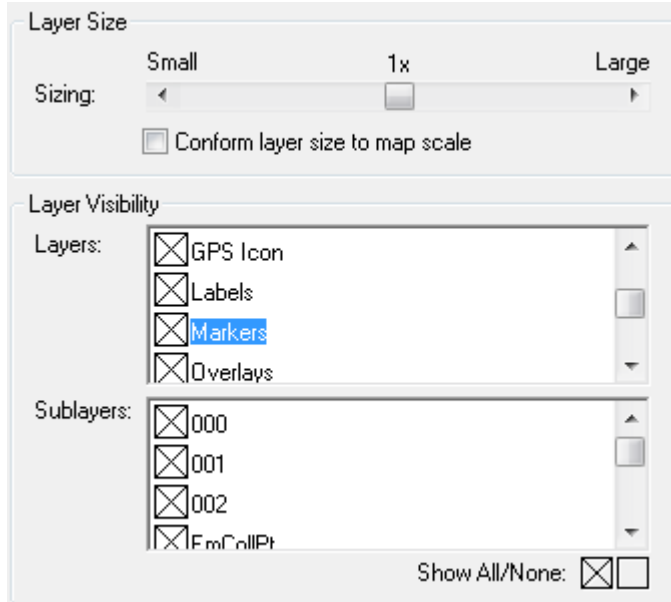
Backup/Restore and Archiving of Layers

Terrain Navigator Pro includes the ability to backup Projects automatically in any location you define. Alternatively, this can be done whenever you choose. Set these options up in the AutoSave, Backup and Restore Preferences.

Layer Size/Visibility

Showing, Hiding, and Sizing Layers

 Layers (including Markers, Routes, Tracks, and Labels) are separate from the base map image and separate from each other. This allows you to show or hide these items as you wish - as opposed to features that are printed on the physical base map. Also, because of their scalable nature, layers can be sized to meet your viewing preferences - or that of the project. Open the **View** menu and choose **Layer Size/Visibility** to choose what layers you want to show on the map and how you wish to size them. (Alternatively, you may access the **Layer Size/Visibility** options by pressing its button on the toolbar, or by opening the **Preferences** window and choosing **Layer Size/Visibility**. Terrain Navigator Pro will save your layer size and visibility settings from session to session.



The Layer Size/Visibility preferences are divided into two parts: **Layer Size** (described below) which controls the overall dimensions/screen appearance of all layers; and **Layer Visibility** which indicates which layers are shown in the map window.

Layer Visibility

In **Layers**, specify the class of layer that you wish to show or hide. An X indicates that the layer class will be visible on the base map.

Some layers are single objects (such as the Find Circle or the GPS Icon used for live tracking.) Other layers have **Sublayers** such as Markers. Each Project contains its own unique group of layers (and Markers) and you may have hundreds of markers within any given project. Use the Sublayers to show and hide individual Markers. The same can be done for

Routes, Tracks and other Layer classes that include individual components.

When there are no Sublayers for the selected Layer (such as the Find Circle), the Sublayers section of this window will not be available.

In most cases, all Sublayers in the project will be shown. However, due to their unique function, only those labels that are currently being displayed in the active map area will be available in the sublayer list.

Use **Show All/None** to quickly show or hide all of the individual markers (or routes, tracks, etc.)

Notes: You can show or hide the base map image (the topographic map or aerial photo) by selecting the **Base Map** layer.

One shortcut to hide any sublayer (an individual marker, route, track, etc.) is to right-click on that object on the map and choose **Hide**. To show it again, use the Layer Size/Visibility preference. Alternatively, each Edit window for markers, routes, etc. includes an option to **Hide from view**. This provides a convenient shortcut to these visibility preferences.

When you select an object in the **Find** menu, that object is automatically shown if it had been previously hidden.

A common layer that is often hidden from view are the **Benchmarks**. These are the NGS data sheets that are commonly used by surveyors and other land professionals and appear as red triangles on the map.

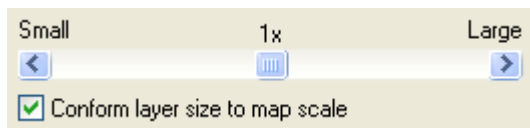
Layer Size

The **Sizing** controls allow you to specify how large or small all layers will appear on the screen. Drag the sizing slider to make all layers appear smaller or larger. As you slide this control, the main map window will change accordingly.

You can also **Conform the layer size to match the map scale**. This allows the layers to retain their dimensions regardless of the zoom level or scale of the map. Some examples of this are displayed below.

Conforming Layer Size to Map Scale

As described above, Terrain Navigator Pro includes the ability to size your layers based upon, or independent of the map scale. Depending on how you are using your maps, both methods are valuable.

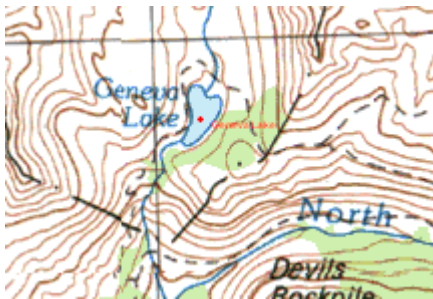


When **Conform layer size to map scale** is checked **on**, the size of the layer will change as you adjust the scale or zoom level of the base map (or photo) being viewed. The advantage to this is that the same ground distance is always covered; the disadvantage is that the symbol and text will get really big and really small as you go through the various map scales and zoom levels.

For example, suppose you placed a marker on Geneva Lake in 1:1 zoom on a 1:24,000 topographic map. The result may look something like this:



With Conform layer size to map scale turned on, switching to a 1:100,000 scale (less detailed) map will show like this:



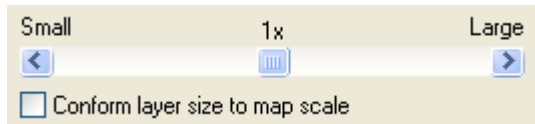
This is because the marker symbol and the text size are retaining their geographic shape, relative to the map scale.

Likewise, if you zoom in on the 1:24,000 scale map to 2:1, the text and marker will get larger in size:



This is very useful if you want the symbol (or route line thickness, or any other layer property) to always cover the same space on the ground regardless of scale. For example, if you set your route thickness to match the width of a road you wish to construct, then zoom in on that map (or an aerial photo), the road will retain its width.

In all cases, you can drag the sizing control slider to adjust the layer size to match the scale (and/or zoom) at which you are currently viewing your map. However, this could have unexpected results when you have painstakingly set the size to match a physical ground distance, then slide everything to a new size.



When **Conform layer size to map scale** is checked **off**, the layers will retain their sizing regardless of the map scale. In other words, the marker and text size will always be the same point size as you switch between the various scales and zoom levels. This can be advantageous, as you will always see the marker and the text; however, as you view a wider area, the screen can get very cluttered.

For example, suppose you placed a marker on Geneva Lake in 1:1 zoom on a 1:24,000 topographic map. The result may look something like this:



With Conform layer size to map scale turned off, switching to a 1:100,000 scale (less detailed) map will show like this:



This is because the marker symbol and the text size are retaining their point size, regardless of the map scale.


Likewise, if you zoom in on the 1:24,000 scale map to 2:1, the text and marker will still stay the same size:



This is very useful if you want the symbol (or route line thickness, or any other layer property) to always be visible, regardless of scale. For example, if you wish to provide a broad overview of a road you wish to construct, then zoom out on that map (or switch to a less-detailed scale, such as 1:100,000 or 1:250,000) and the road will always be clearly visible.

In all cases, you can drag the sizing control slider to adjust the layer size to match the scale (and/or zoom) at which you are currently viewing your map. However, this could have unexpected results when you have painstakingly set the point sizes in a particular fashion, then slide everything to a new size.


Toggle All Layers On/Off

 To temporarily hide all layers from view (revealing only the base map), click the Layer Visibility toggle button on the toolbar. Or, click **View > Show Layers**. This will remove the check mark from the "Show Layers" menu item, and remove all layers from the map display. Recheck **View > Show Layers** to restore the layers.

Layer Information

To get information about a specific layer item, right-click it and choose **Information**. The resulting window will not only provide various statistics specific to the layer you've clicked, it will also provide data about the map containing this layer. In addition, you may print this information.

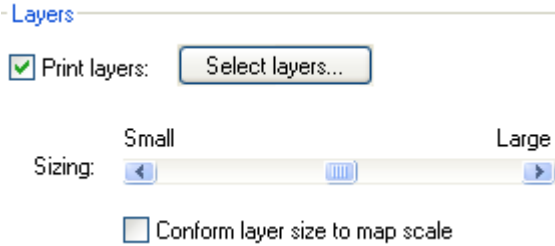
- **Marker Information:**
Name and coordinates of marker, along with any comments you noted about that location.
- **Route Information:**
Name of route and name/coordinates of the waypoint you clicked. Also includes distance and bearing between all waypoints in the route and the area of the route (if the route is looped closed.)
- **Track Information:**
Name and length of track, along with comments and, if the track forms an enclosure, the calculated area will be indicated.
- **Range Ring Information:**
Name and center coordinates, along with number of rings and the ring interval (in distance or time.)
- **Range/Bearing Line Information:**
Coordinates of beginning and end points; range and bearing between points (in both directions.)
- **GeoPin Information:**
Name, coordinates, and notes about location; details about the document linked to the GeoPin (document type and filename.)
- **Polygon Information:**
Depending on the portion of the polygon clicked (area, edge, vertex, or hole), various relevant items will be displayed.
- **Overlay Information:**
Name, Area, and Length of the overlay. Also includes specific information regarding the source data file, number of objects, bounding box, and other comments.

You can also use the Information Tool  to obtain information about any layer. Simply click on the Information Tool on the toolbar, then click on the layer of interest.

To change the units displayed in the Layer Information window, open the **File** menu and choose **Preferences, Units**. Note that the primary unit for any given Range Rings and Range/Bearing Line is specified when that layer object is created or edited. Use Edit Range Rings (or Edit Range/Bearing Lines) to specify the unit for each individual object.

Printing Layers & Layer Information

Printing Layers



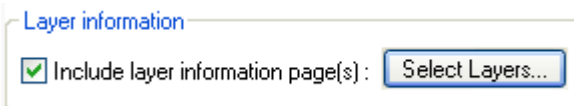
To include a layer on a printed map, open the **File** menu, select **Print**. In the **Properties** tab, select the **Map Page Block**. Check **Print layers** to include layers on the map, uncheck **Print layers** if you do not want to include any layers. If you want to include only some of your layers, press **Select layers** to indicate the types of layers you wish to show or hide. An in the list of layers indicates that the layer will be included on the final printed or saved image.

As with the on-screen map display, there are options to size the layers to match the proportions of your page. The **Sizing** controls allow you to specify how large or small all layers will appear on the screen. Drag the sizing slider to make all layers appear smaller or larger. As you slide this control, the preview area will change accordingly.

You can also **Conform the layer size to match the map scale**. This allows the layers to retain their dimensions regardless of the zoom level or scale of the map. For a detailed explanation on how this works, refer to Layer Size/Visibility.

Printing Layer Information

To print information about specific layers (such the position of each marker, route statistics, area of a closed/looped track or route, etc.), use the Information Tool to open the statistics for that layer, and press **Print**.



You may also wish to include such information along side any printed map. Terrain Navigator Pro features an easy way to accomplish this. Open the **Print** window, select the **Pages** tab and check **Include layer**

information pages(s). If you want to include statistics for only some of your layers, press **Select layers** to indicate the types of layers you wish to include information on. An in the list of layers indicates that information for the layer will be included on the final printed or saved image.

After the map image is printed, additional page(s) will be printed with information about all layers selected. (Note that if many layers are included in the print area, including the Layer Information may require several pages of printed text.)

Deleting Layers

To delete an individual layer item, right-click it and choose **Delete**.

You can also use a layer's edit window to delete items of that layer type. From the Layers menu, select a layer type. All items of that type are listed: highlight an individual item and click **Delete**.

Deleting a Layer Project

If you use projects to organize your layers, you can delete entire projects: click **Layers > Projects**, highlight the name of the project, and click **Delete**. Since projects allow you to shelve certain layers while working with others, thereby keeping your maps free from extra clutter, you may find that using projects lessens your need to delete layers in the first place.

Deleting ALL Layers of a Given Type

Terrain Navigator Pro includes a feature whereby you may delete ALL layers of a particular type (within the current project). This command is irreversible, so as a precaution against accidental deletion, the process requires multiple steps.

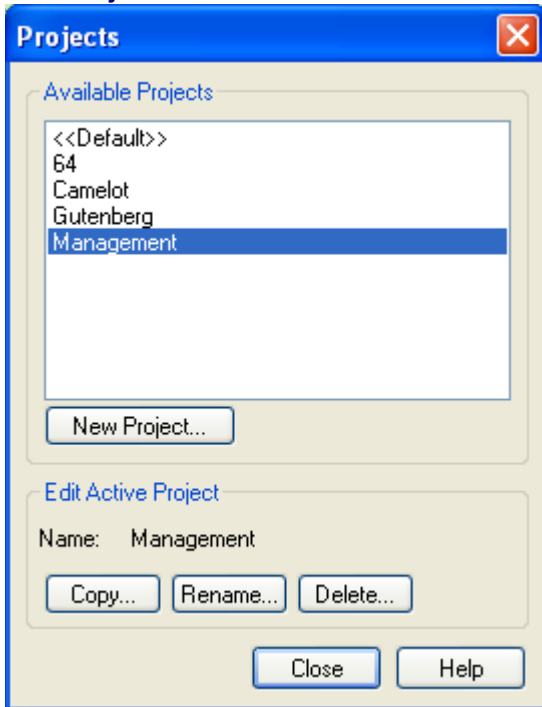
Note: ONCE DELETED, LAYERS CANNOT BE RESTORED.

Be absolutely sure you wish to delete ALL layers of the given type before using this command.

1. Enable the "Delete All" function: click **File > Preferences > General**, and check **Allow "Delete All"**
2. Next, use the Layers menu to select a layer type.
3. HOLD DOWN THE SHIFT KEY while clicking the **Delete** button found in the given layer's edit window. A message will appear, asking you for final confirmation before your layers are permanently deleted.

Organizing Layers, using Projects

About Projects



A *project* is a set of layers. By storing your layers (markers, range rings, tracks, etc.) in different projects, you can group and organize your layer data.

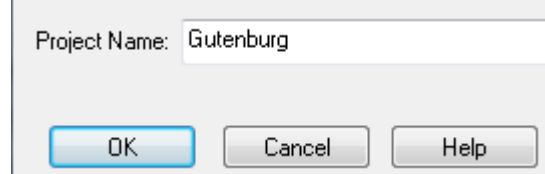
Every layer you create is stored in a project. A project may contain multiple types of layers. For example, you can create a project to store all your track logs from a hiking trip, save line-of-sight and range rings for a particular job site, or group a set of GeoPins linked to a collection of photographs. When a project is in use, the layers in the other projects are not shown. If you work often with a particular map area, projects can help you keep the area from becoming cluttered with layers.

To change to another project, click **Layers > Change Project**. Then, select the name of the desired project from the list of Available Projects. You will note the name of the Project will appear in the titlebar of Terrain Navigator Pro. Also, any Layers in that project will appear on the screen - layers in other projects will be hidden from view. Press Close to exit the list of Projects and return to the main map display window.

You can also use the Project list to you to **Rename** or **Delete** existing projects, or create **New** ones - either from scratch or by **Copying** an existing Project.

To save your Project for backup purposes, or to share with others with Terrain Navigator Pro, click **File > Export > Active Project**. This will save all the layers in that project as a single Terrain Project Archive (TPA) file. To restore an existing archive, click **File > Import > Archived Project**.

Creating a New Project



When you first start using Terrain Navigator Pro, all your layers are stored in the same project, with the name "<Default>". If you want to create a new project, open the **Layers** menu, select **Manage Projects** and click the **New** button. If the annual subscription has expired (and access to the TNP Cloud and TNP Mobile App has been

discontinued) a simple window (shown here) check your will appear for you to assign your new project a name. Any new layers created will be stored under this project name. The project name will be noted in the title bar of the Terrain Navigator Pro window.

To stop adding layers to this project, open the **Layers** menu, select **Manage Projects** again and select a different project from the list. Selecting a project from the list of available projects makes it the active project. Whenever you create new layers, they are automatically added to whatever project is active.

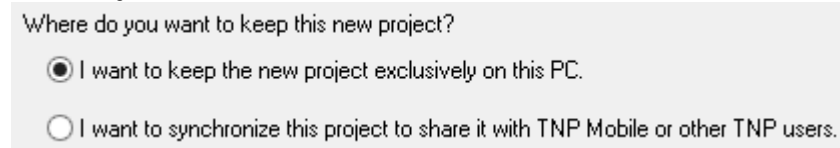
Notes:

- You may only work with one project at a time.
- Any new layers you create are automatically added to the active project.
- To stop adding layers to a project, you must change to another project (open the **Layers** menu and select **Manage Projects**).
- Projects may not be combined, nor may layers be shared across multiple projects. However, you can use the Copy/Paste functions (found under the Tools menu) to copy particular layers from one project and paste them into a second project.
- Projects are automatically saved every time you close Terrain Navigator Pro or switch to another project.

New Project - The New Project Wizard

When Project Synchronization is available to the TNP Cloud and TNP Mobile App a **New Project Wizard** will begin to guide you through the process of creating a new project and (if you so wish) synchronizing it with a project that exists elsewhere.

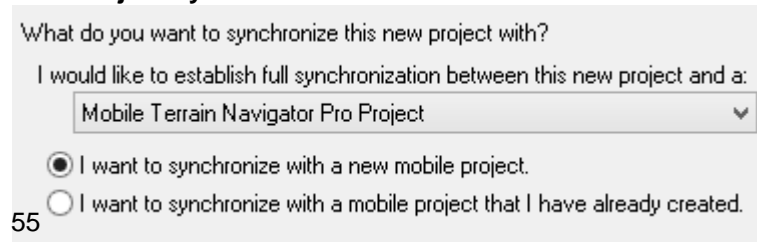
New Project Location



The first step in creating a project is to determine if it should be kept local on this PC, or shared with other copies of Terrain Navigator Pro (including the TNP Mobile

App.) If you want to use this project only on this PC (or want to set up synchronization at another time) select that option and press Next. If you want to create this project and share (synchronize) it with the TNP Mobile App (or other copies of Terrain Navigator Pro within your organization) select the second option and press Next.

New Project Synchronization



If you choose to synchronize the new project, you will be asked for the type of service you wish to synchronize with. In most cases, you will want to synchronize with a Mobile Terrain Navigator Pro

Project - as this will use the TNP Cloud to share the project with the TNP Mobile App (or others within your Organization if you are using the Enterprise Edition).

If this is an entirely new project (and you have not created a companion project on the TNP Mobile App already) select *I want to synchronize with a new mobile project*. This will not only create a project on the PC desktop, but also in the TNP Mobile App (or text file directory, if that service was selected.)

In the event that you have already created a new project in the TNP Mobile App, and you want to link this new desktop project with that existing mobile project, select *I want to synchronize with a mobile project that I have already created*. (Again, this can also be used with the less-common text file synchronization service.

Note that this will establish Full Synchronization between the two projects. For more information, see the discussion of synchronization methods.

Selecting an Existing Project

Should you decide to synchronize this new PC desktop project with one that already exists on the TNP Mobile App, you will be presented with a list of projects that have already been created. Select the project that you created on the TNP Mobile App that matches the one you would like to create on the desktop, and press Next. If you have the Enterprise Edition, you can select from the list of all available projects - including those shared by your teammates.

If you are employing text file synchronization, a similar window will appear to allow you to pick the folder that the new project is stored in.

Picking the Team

Those with the Enterprise license can assign multiple users to teams. This allows you to have projects available to some groups of users, but not others. If you have Enterprise, you can select the team you wish to have access to this project. Or select <My Private Projects> if you prefer that no others in your organization have access to the project.

Naming the Project

The final step in the New Project Wizard is to give the new project a name. If the project existed on the TNP Mobile App already, its name will be filled in automatically. This name can still be changed (as they are two different projects - one on the TNP Mobile App and one on the PC desktop) but for clarity's sake, it is best to keep them the same. Likewise, if you are creating/synchronizing a new project on both the PC and the TNP Mobile App, then the same name will be used for both projects.

Once the name has been decided, press Next and your project will be created and available in the list of projects on the PC desktop (and TNP Mobile App, if you elected to create that project too.)

Other Project Tips

Here are some additional common tasks related to making new projects. Copying, Renaming, and Deleting are very useful to duplicate an existing project so that it can be re-used in a different fashion. Note that these tasks apply exclusively to the PC desktop project - they do not affect any projects that they are synchronized with on the TNP Mobile App.) In other words, if you delete the project on the PC desktop, and it is synchronized with a Mobile Terrain Navigator Pro Project, the Mobile Terrain Navigator Pro Project will remain and not be deleted from the TNP Mobile App or TNP Cloud.

Copying Projects

Open the **Layers** menu and select **Manage Projects**. Select a project from the list and click the **Copy** button to take the contents of that project and duplicate them into a new project.

Renaming Projects

Open the **Layers** menu and select **Manage Projects**. Select a project from the list and click the **Rename** button to assign it a new name.

Deleting Projects

Open the **Layers** menu and select **Manage Projects**. Highlight the project you want to delete, and click the **Delete** button.

Saving Layers in the Active Project

To save all layers you have created in the current project, open the **File** menu and select **Save Active Project**.

Note that this step is not usually required, as Terrain Navigator Pro automatically saves the active project periodically, and whenever the program is exited under normal conditions. This feature is provided for those who may be using Terrain Navigator Pro under harsh computing conditions where a normal shut down of Terrain Navigator Pro is not always possible.

Archiving (Saving/Exporting/Sharing) Projects

Use the Export Active Project command found under the **File** menu to create a Terrain Project Archive (or TPA) file. This file can be used for backup purposes or sharing your project with other users of Terrain Navigator Pro. To restore a project that has been archived, open the **File** menu and choose **Import Archived Project**.

Renaming/Copying Projects

All the layers you create in Terrain Navigator Pro are stored in Projects. You can create new projects and name them as you wish. To rename a project, open the **Layers** menu, choose **Change Project**, select a project from the list, then press the **Rename** button.

You can also copy the layers from one project to a new project. Open the **Layers** menu, choose **Change Project**, select the source project from the list, and press the **Copy** button. Note that this creates a *copy* of the layers from the source project - they are not linked in any way.

If you wish to copy an *individual* layer (such as a route or marker) from one project to another, use the **Copy/Paste** functions found under the **Tools** menu. Click on the object you wish to copy, open the **Tools** menu and choose **Copy**, open the **Layers** menu and choose **Change Project**, select and activate the project to paste the object into, and finally open the **Tools** menu and choose **Paste**. (*Multiple* copy/paste operations can be facilitated using the windows for **Exporting Markers, Routes, Tracks**, etc.)

Combining the copying of projects with the various editing tools can be used for a variety of special tasks. For example, if you wanted to take a portion of one project as the basis of another, use Copy Project to create a new project, then delete the unneeded portions (while keeping the items you wish to base this new project upon.) If you do this often, consider keeping a separate copy of the base data project, then copy the base project every time you wish to create a new project that contains that base data.

Importing/Exporting Projects (Terrain Project Archive)

Projects may be exported from Terrain Navigator Pro and saved in a single Terrain Project Archive file (ending in .TPA.) This allows you to share projects with friends and colleagues who use Terrain Navigator Pro, or save projects for future reference. To export a project, open the **File** menu and choose **Export, Active Project**. The project you're working with will be saved in a Terrain Project Archive. To import a project that has been archived, open the **File** menu and choose **Import, Terrain Project Archive**.

Combining the importing and exporting of projects with the copy/paste tools can be used for a variety of special tasks. For example, if you wanted to take a portion of one project from a colleague and combine it with your own, use **Export Active Project** on the colleague's copy of Terrain Navigator Pro to create a Terrain Project Archive. **Import** the **Terrain Project Archive** into your PC. Find the layer you wish to place in your project, right click it, and choose **Copy to Clipboard**. Open the **Layers** menu, choose **Change Project** and switch to the desired project. From the **Tools** menu, choose **Paste** and the layer object will now be in your project. Finally, delete the copy of the project (using **Layers, Change Project**) if you so desire. (Multiple copy/paste operations can be facilitated using the windows for **Exporting Markers, Routes, Tracks**, etc.)

When multiple projects are to be imported, hold the SHIFT or CTRL key down when selecting the Terrain Project Archive. This will allow Terrain Navigator Pro to load each selected project at once.

Terrain Navigator Pro also includes full backup and restore features. Terrain Project Archives can be created automatically in the directory of your choice. Moreover, a complete directory of Terrain Project Archives (one for each of your projects) can be created with a single command using the **File** menu and choosing **Backup and Restore, Backup all Projects**. Finally, any of these Terrain Project Archives can be restored into Terrain Navigator Pro using **File, Backup and Restore, Restore Project(s)** and using the SHIFT or CTRL key to select multiple .TPA files.

Projects can also be exported as combined collections of markers, routes, and tracks into .GPX and .KML files. Use the **File** menu and choose **Export, Active Project**, then specify the GPX or KML file type. Note that only markers, routes, and tracks are exported - other layer types are ignored.

The Find Menu

Searching Place Names by Category

Place Name	Distance (mi.)
Poplar Hill	3.17
Spicket Hill	3.78
Gage Hill [371]	4.41
Zion Hill [279]	5.62
Deer Ledge	5.78
Pulpit Rock	6.44
Providence Hill	6.54
Poors Hill	7.23
Gordons Hill	7.26
Jennys Hill	7.35
Mystery Hill	7.69
Bragg Hill	7.71
Hog Hill [420]	7.99
Cambridge Hill	8.14
Butterfield Rock	8.19

Terrain Navigator Pro's Find menu provides several search options to help you find specific places quickly and easily. These search options are powered by the GNIS (Geographic Names Information System), a database of place names compiled by the USGS. Each place listed in this database is referenced to its location on the map. The place names are arranged by category: you can streamline your search by selecting a specific category: **city, town, street address, zip code**, or select from over fifty **Geographic Categories** (terrain features). (To search all categories, click Locate, Placename Search.)

The items in each category are presented in alphabetical order. You can scroll through the list, or else type a name—or even just a few letters—to search for. The list will shorten as you type.

All or Nearest 15

To narrow down the list to show only the fifteen items nearest to the map location you're already viewing, select **Nearest 15**. When Nearest 15 is selected, the list provides the distance to each

location (see example picture). (Of course, the Nearest 15 option is unavailable if you aren't already viewing a map location.)

When you have found what you were looking for, double-click the place name or click **Open** to view it on the map. You may also have additional Open buttons:

Open Another/Replace Active

If you already have one map window open, you'll have these two buttons to choose from. **Open Another** will present your search result location in a second map window. **Replace Active** will close whatever map you had been viewing, and show the new map in that window instead.

If you don't click either of these buttons, and instead just click on the location name, the location will be displayed in the active window.

Replace Active/Replace Inactive

If you already have your maximum of two map windows open, you can choose to view the new map location in the **Active** window or the **Inactive** window. The *active* window is the map window that you last worked with, and can be recognized by its highlighted title bar (at the top of the window). The other window is *inactive*.

Unless you make a choice between these buttons, the new map will be shown in the active window (whatever window you were last using).

Search All Placenames

Map Type: 1:24,000/25,000 Topographic

Keyword: Greeley Find

Matches found: 8 All Items Found Nearest 15

[Lake]	Greeley Ponds
[Locale]	Greeley Camp (historical)
[Locale]	Horace Greeley Birthplace
[Park]	Greeley Park
[Park]	Greeley Ponds Scenic Area
[Stream]	Greeley Brook [1519]
[Stream]	Greeley Brook [1896]
[Trail]	Greeley Ponds Trail

Replace Active Open Another

Cancel Help

Terrain Navigator Pro's Find menu provides several search options to help you find specific places quickly and easily. These search options are powered by the GNIS (Geographic Names Information System), a database of place names compiled by the USGS. Each place listed in this database is referenced to its location on the map. The placenames are arranged by category. If you don't want to limit your search to a specific category, you can search all of them: open the **Find** menu and choose **Search All Placenames**.

Type a name—or even just a few letters—to search for. Terrain Navigator Pro will create an alphabetized list of possible matches when you press **Find**.

All Items Found or Nearest 15

You can sort the search results by geographic proximity. To show only the 15 results nearest to the map area that you are already viewing, click **Nearest 15**. When **Nearest 15** is selected, the search results list provides the distance to each location. (Of course, the

Nearest 15 option is unavailable if you aren't already viewing a map location.) To return to the full results list, click **All Items Found**.

When you have found what you were looking for, specify the desired scale of map to open by selecting a **Map type**, then double-click the place name or click **Open** to view it on the map. You may also have additional Open buttons:

Open Another/Replace Active

If you already have one map window open, you'll have these two buttons to choose from. **Open Another** will present your search result location in a second map window. **Replace Active** will close whatever map you had been viewing, and show the new map in that window instead.

If you don't click either of these buttons, and instead just click on the location name, the location will be displayed in the active window.

Replace Active/Replace Inactive

If you already have your maximum of two map windows open, you can choose to view the new map location in the **Active** window or the **Inactive** window. The *active* window is the map window that you last worked with, and can be recognized by its highlighted title bar (at the top of the window). The other window is *inactive*.

Unless you make a choice between these buttons, the new map will be shown in the active window (whatever window you were last using).

Find Street Address

The screenshot shows a dialog box titled "Find Address...". It has a close button (X) in the top right corner. The dialog contains the following elements:

- An "Address:" label followed by a text input field containing "1 Main St."
- A "City:" label followed by a text input field containing "Anytown".
- An "or ZIP code:" label followed by an empty text input field.
- Four buttons arranged in a 2x2 grid: "Replace Active" (top-left), "Open Another" (bottom-left), "Cancel" (top-right), and "Help" (bottom-right).

Street address information is included in the base data set included with Terrain Navigator Pro. To search for an address, click **Find > Street Address**. Terrain Navigator Pro will open a map centered on that location.

Note: This address information is intended for general guidance. Some minor or newer roads may not be fully represented.

Replace Active/Open Another

If you already have one map window open, you'll have these two buttons to choose from. **Open Another** will present the address in a second map window. **Replace Active** will close whatever map you had been viewing, and show the address in that window instead.

Replace Active/Replace Inactive

If you already have your maximum of two map windows open, you can choose to show the address in the **Active** window or the **Inactive** window. The *active* window is the map window that you last worked with, and can be recognized by its highlighted title bar (at the top of the window). The other window is *inactive*.

Find Coordinates

Find Coordinates

Map Type: 1:12,000

Format: D° M' S"

Latitude: 42 ° 43 ' 54.91 " N

Longitude: 71 ° 0 ' 9.90 " W

Datum: NAD83

Replace Active Open Another

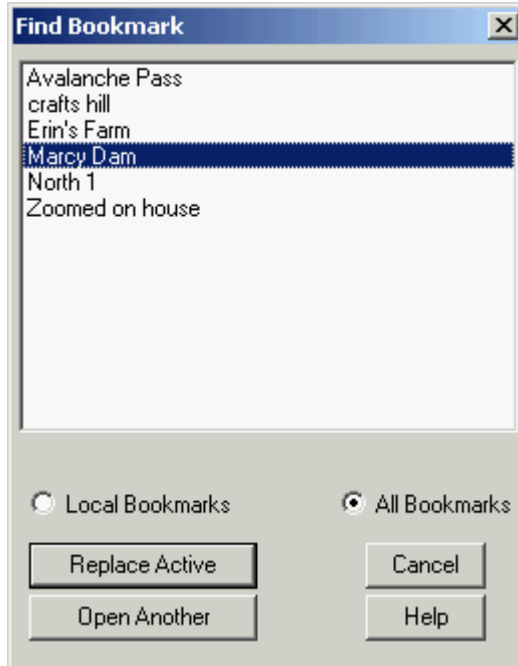
Cancel Help

To find map coverage for specific coordinates, click **Find > Coordinates** (or right-click on map, choose **Find > Coordinates**) and type the coordinates. Click **OK**, and Terrain Navigator Pro will center the map window on the coordinates you provided.

You can specify the format of the coordinate system you wish to search for. For example, if you are working in Latitude/Longitude, but need to do a quick lookup in UTM, change the **Format** to UTM and type in the desired coordinates.

Note: Specifying a different coordinate format or datum here does NOT affect your settings in coordinate preferences.

Find Bookmark



You can use bookmarks to keep track of specific locations and map views. To return to a bookmarked location, click **Locate, Bookmark** (or just press Ctrl-B). Double-click the name of the bookmark you want to view.

Local Bookmarks/All Bookmarks

To narrow the list down to show only the bookmarks on the map you are viewing, click **Local Bookmarks**. Click **All Bookmarks** to list all bookmarks.

Replace Active/Open Another

If you already have one map window open, you'll have these two buttons to choose from. **Open Another** will present your bookmarked location in a second map window. **Replace Active** will close whatever map you had been viewing, and show the bookmarked location in that window instead.

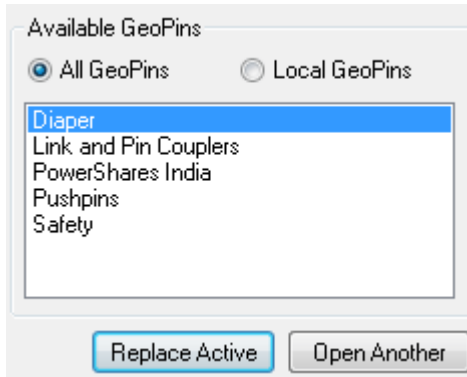
If you do not click either of these buttons, and instead open your bookmark just by clicking on the bookmark name, the bookmarked location will be displayed in the active window.

Replace Active/Replace Inactive

If you already have your maximum of two map windows open, you can choose to show your bookmarked map in the **Active** window or the **Inactive** window. The *active* window is the map window that you last worked with, and can be recognized by its highlighted title bar (at the top of the window). The other window is *inactive*.

Unless you make a choice between these buttons, your bookmark will be shown in the active window (whatever window you were last using).

Find GeoPin



Open the **Find** menu and choose **GeoPin** to locate any GeoPin and view its location on the map.

Local GeoPins/All GeoPins

To narrow down the list and show only the GeoPins on the map you're viewing, click **Local GeoPins**. Click **All GeoPins** to list all GeoPins in this project.

Opening the Map that Contains the GeoPin

Press **Open** to display the GeoPin on the map at the best available scale (usually 1:24,000 topographic.) Or, double-click on GeoPin's name in the list of available GeoPins.

Replace Active/Open Another

If you already have one map window open, you'll have these two buttons to choose from. **Open Another** will present your GeoPin in a second map window. **Replace Active** will close whatever map you had been viewing, and show the GeoPin in that window instead.

If you do not click either of these buttons, and instead double-click on the GeoPin name, it will be displayed in the active window.

Replace Active/Replace Inactive

If you already have your maximum of two map windows open, you can choose to show your GeoPin in the **Active** window or the **Inactive** window. The *active* window is the map window that you last worked with, and can be recognized by its highlighted title bar (at the top of the window). The other window is *inactive*.

If you do not click either of these buttons, and instead double-click on the GeoPin name, it will be displayed in the active window (whatever window you were last using).

Find Label

To quickly find a specific label, click **Find > Label** and select the label name from the list provided.



Double-click the name of the label you want to view. The label will be centered on the screen, and enclosed in a red circle.

Replace Active/Open Another

If you already have one map window open, you'll have these two buttons to choose from. **Open Another** will present your label in a second map window. **Replace Active** will close whatever map you had been viewing, and show the label in that window instead.

If you do not click either of these buttons, and instead just click on the label's name, the label will be displayed in the active window.

Replace Active/Replace Inactive

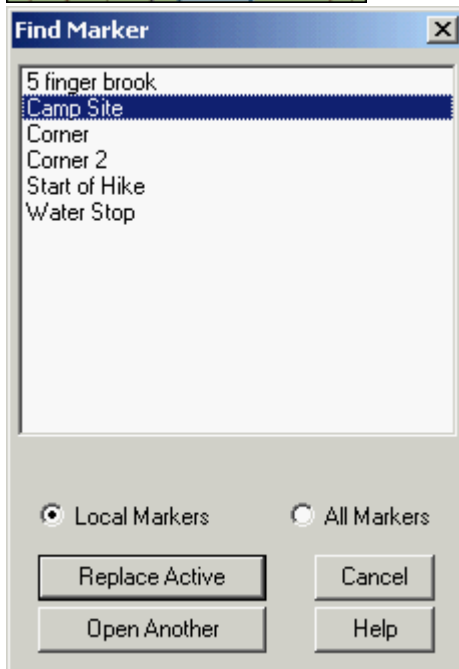
If you already have your maximum of two map windows open, you can choose to show your label in the **Active window** or the **Inactive window**. The active window is the map window that you last worked with, and can be recognized by its highlighted title bar (at the top of the window). The other window is inactive. Unless you make a choice between these buttons, your label will be shown in the active window (whatever window you were last using).

Find Marker

To quickly find a specific marker, click **Find > Marker** and select the marker name from the list provided. Double-click the name of the marker you want to view.



The marker will be centered on the screen, and enclosed in a red circle.



Local Markers/All Markers

To narrow down the list to show only the markers on the map you're viewing, click **Local Markers**. Click **All Markers** to list all the markers.

Replace Active/Open Another

If you already have one map window open, you will have these two buttons to choose from. **Open Another** will present your marker in a second map window. **Replace Active** will close whatever map you had been viewing, and show the marker in that window instead.

If you do not click either of these buttons, and instead just click on the marker name, the marker will be displayed in the active window.

Replace Active/Replace Inactive

If you already have your maximum of two map windows open, you can choose to show your marker in the **Active** window or the **Inactive** window. The *active* window is the map window that you last worked with. It can be recognized by its highlighted title bar (the colored bar at the top of the window, which is blue in the

standard Windows color configuration). The other window is *inactive*.

Unless you make a choice between these buttons, your marker will be shown in the active window (whatever window you were last using).

Find Range Ring

Click **Find > Range Ring** to open the map containing a particular set of range rings.



Local Range Rings/All Range Rings

To narrow down the list to show only the range rings on the map that you're viewing, click **Local Range Rings**. Click **All Range Rings** to list all range rings in this project.

Double-click the range rings you want to see, or highlight the range rings and click **Open**. If you already have map window(s) open, you will have additional Open buttons:

Replace Active/Open Another

If you already have one map window open, you'll have these two buttons to choose from. **Open Another** will present your range ring in a second map window.

Replace Active will close whatever map you had been viewing, and show the range ring in that window instead.

If you don't click either of these buttons, and instead just click on the range ring name, the range ring will be displayed in the active window.

Replace Active/Replace Inactive

If you already have your maximum of two map windows open, you can choose to show your range ring in the **Active** window or the **Inactive** window. The *active* window is the map window that you last worked with, and can be recognized by its highlighted title bar (at the top of the window). The other window is *inactive*.

Unless you make a choice between these buttons, your range rings will be shown in the active window (whatever window you were last using).

Find Range/Bearing Line

To quickly find a specific range/bearing line, click **Find > Range/Bearing Line** and select the line's name from the list provided. Double-click the name of the range/bearing line you want to view.



Local Range/Bearing Lines/All Range/Bearing Lines

To narrow down the list to show only the range/bearing lines on the map you are viewing, click **Local Range/Bearing Lines**. Click **All Range/Bearing Lines** to list all range/bearing lines in this project. Once you have selected the desired Range/Bearing Line, click **Open** or double-click the name in the list of available Range/Bearing Lines.

Find End of Range/Bearing Line

Select **Find End of Range/Bearing Line** to view the finishing point (the end with the arrow head) of the range/bearing line on the map when **Open**, **Replace Active**, **Replace Inactive** or **Open Another** is pressed.

Replace Active/Open Another

If you already have one map window open, you'll have these two buttons to choose from. **Open Another** will present your range/bearing line in a second map window. **Replace Active**

will close whatever map you had been viewing, and show the range/bearing line in that window instead.

If you do not click either of these buttons, and instead just click on the range/bearing line's name, it will be displayed in the active window.

Replace Active/Replace Inactive

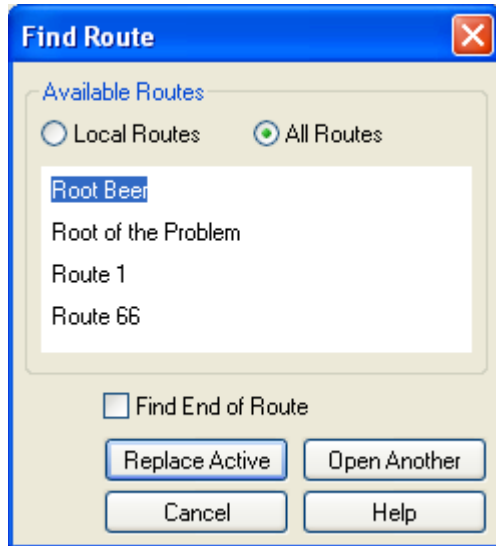
If you already have your maximum of two map windows open, you can choose to show your range/bearing line in the **Active** window or the **Inactive** window. The *active* window is the map window that you last worked with. It can be recognized by its highlighted title bar (the colored bar at the top of the window, which is blue in the standard Windows color configuration). The other window is *inactive*.

Unless you make a choice between these buttons, your range/bearing line will be shown in the active window (whatever window you were last using).

Find Route

To quickly find a specific route, open the **Find** menu, choose **Route** and select the route name from the list provided.

Double-click the name of the route you want to view.



Local Routes/All Routes

To narrow down the list to show only the routes on the map you're viewing, click **Local Routes**. Click **All Routes** to list all routes. Once you have selected the desired Route, click **Open** or double-click the name in the list of available Routes.

Find End of Route

Select **Find End of Route** to view the end of the route (the last waypoint) on the map when **Open**, **Replace Active**, **Replace Inactive** or **Open Another** is pressed.

Replace Active/Open Another

If you already have one map window open, you will have these two buttons to choose from. **Open Another** will present your route in a second map window. **Replace Active** will close whatever map you had been viewing, and show the route in that window instead.

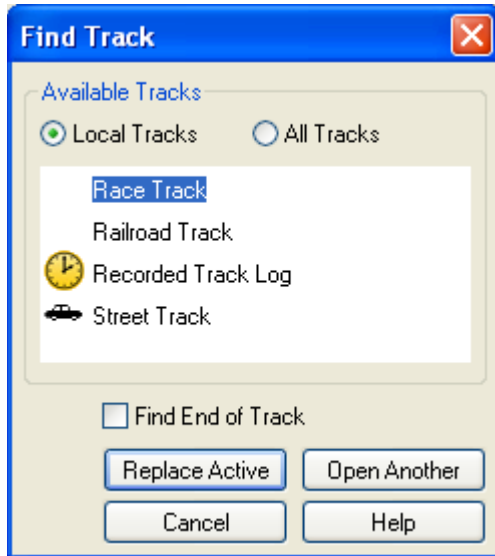
If you do not click either of these buttons, and instead just click on the route name, the route will be displayed in the active window.

Replace Active/Replace Inactive

If you already have your maximum of two map windows open, you can choose to show your route in the **Active** window or the **Inactive** window. The *active* window is the map window that you last worked with, and can be recognized by its highlighted title bar (at the top of the window). The other window is *inactive*.

Unless you make a choice between these buttons, your route will be shown in the active window (whatever window you were last using).

Find Track



To quickly find a specific track, open the **Find** menu, choose **Track**, and select the track name from the list provided. Double-click the name of the track you want to view.

Special Track Icons

To the left of the Track's name, there may be special icons. One such icon is a clock, which indicates that the track has time information embedded into it. This is very useful when coordinating locations along a track with times a photograph is taken and linked in Terrain Navigator Pro using GeoPins. Other icons (such as the automobile shown here) are indicators of additional features for that specific track.

Local Tracks/All Tracks

To narrow down the list to show only the tracks on the map you're viewing, click **Local Tracks**. Click **All Tracks** to list all tracks.

Find End of Track

Select Find End of Track to view the end of the selected track on the map when **Open**, **Replace Active**, **Replace Inactive** or **Open Another** is pressed.

Replace Active/Open Another

If you already have one map window open, you'll have these two buttons to choose from. **Open Another** will present your track in a second map window. **Replace Active** will close whatever map you had been viewing, and show the track in that window instead.

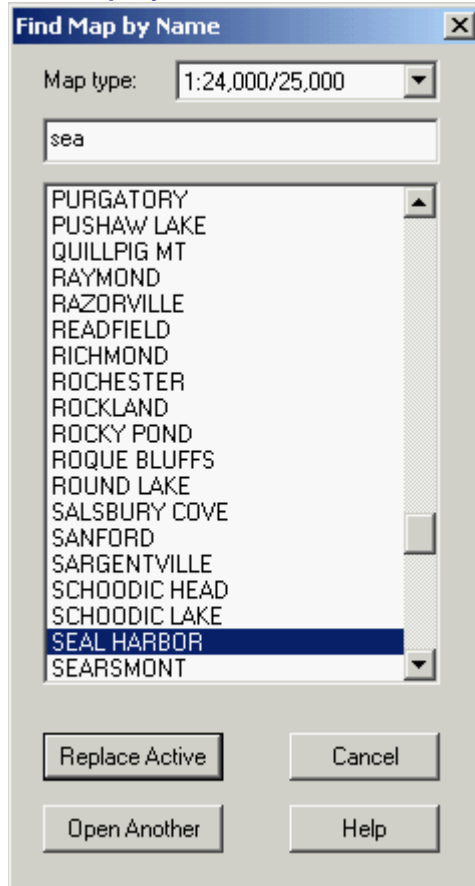
If you do not click either of these buttons, and instead just click on the track name, the track will be displayed in the active window.

Replace Active/Replace Inactive

If you already have your maximum of two map windows open, you can choose to show your track in the **Active** window or the **Inactive** window. The *active* window is the map window that you last worked with, and can be recognized by its highlighted title bar (at the top of the window). The other window is *inactive*.

Unless you make a choice between these buttons, your track will be shown in the active window (whatever window you were last using).

Find Map By Name



The USGS assigns each of its maps a unique name (within each State.) Typically, the map is named for the largest city or populated area that it covers. To select maps by name, click **Find > Map by Name** (or use the map name drop-down menu found in the map selector window).

Note: Sometimes the USGS may change a map's name. For a list of name changes, see the "Readme" document that accompanied your Terrain Navigator Pro installation (click **Help >View Readme**)

Replace Active/Open Another

If you already have one map window open, you'll have these two buttons to choose from. **Open Another** will present your map in a second map window. **Replace Active** will close whatever map you had been viewing, and show the new map in that window instead.

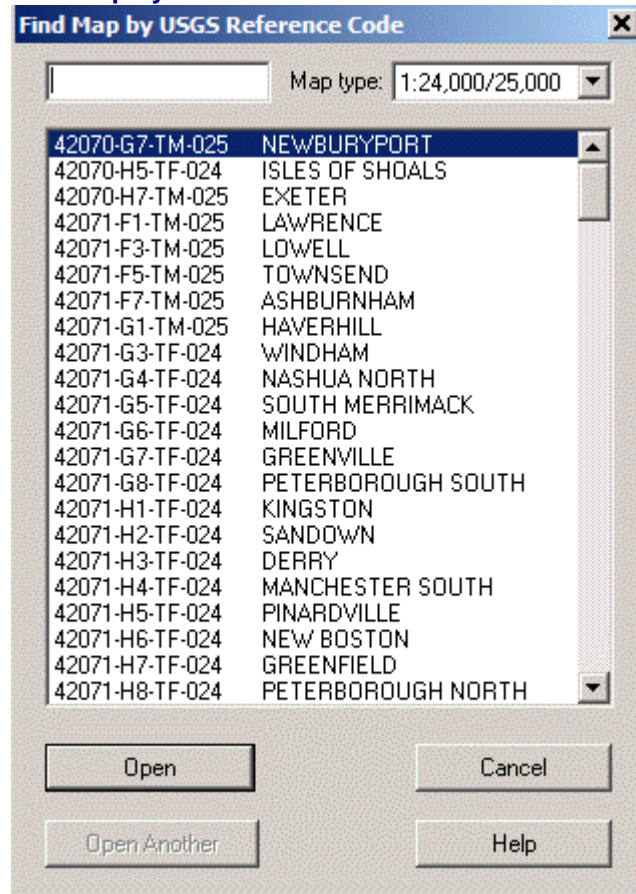
If you do not click either of these buttons, and instead just click on the map name, the new map will be displayed in the active window.

Replace Active/Replace Inactive

If you already have your maximum of two map windows open, you can choose to show your new map in the **Active** window or the **Inactive** window. The *active* window is the map window that you last worked with, and can be recognized by its highlighted title bar (at the top of the window). The other window is *inactive*.

Unless you make a choice between these buttons, your new map will be shown in the active window (replacing whatever map you were last using).

Find Map by Reference Code



The USGS assigns each of its maps a unique *reference code*. This number indicates the quadrant covered by the map. Each element of the reference code has a specific meaning.

Example: The reference code 41077-B3-TF-024 tells you the following:

41 -- The map's coverage area is found at a latitude of 41 degrees.

077 -- The map's coverage area is found at a longitude of 77 degrees.

B -- The map is in the second grid position north of 41 degrees.

3 -- The map is in the third grid position west of 77 degrees.

TF -- A topographic map with contours measured in feet.

24 -- The map scale is 1:24,000.

To select maps by reference code, open the **Find** menu and choose **Map by Reference Code**, or use the reference code drop-down list found in the map selector window.

Replace Active/Open Another

If you already have one map window open, you'll have these two buttons to choose from. **Open Another** will present your map in a second map window. **Replace Active** will close whatever map you had been viewing, and show the new map in

that window instead.

If you do not click either of these buttons, and instead just click on the map reference code, the new map will be displayed in the active window.

Replace Active/Replace Inactive

If you already have your maximum of two map windows open, you can choose to show your new map in the **Active** window or the **Inactive** window. The *active* window is the map window that you last worked with, and can be recognized by its highlighted title bar (at the top of the window). The other window is *inactive*.

Unless you make a choice between these buttons, your new map will be shown in the active window (replacing whatever map you were last using).

Tips and Tricks

Compass Control Bar

The compass bar, along the left side of the Terrain Navigator Pro window, has several features:

Compass



Click any point of the compass to shift the map in that direction. The map image will shift half a screen every time you click the compass. This feature is especially useful in 3-D View.

Map Overview



Beneath the compass is the *map overview*: a thumbnail image of the map that you're viewing. The blue box represents your screen, and indicates what part of the map is being displayed. To view a different portion of the map, move this blue box. You can click-and-drag the blue box to a new position, or you can click outside the box on another part of the map overview, and the box will move to the place where you clicked. The corresponding map area will appear.

Tip: To enlarge the map overview, click the black arrow button that points up to the overview.

State Overview



The *state overview* is a thumbnail image of the state. The red dot gives a general idea of what portion of the state you're viewing. For a more detailed overview, click on the black arrow button that points to the state overview. This will take you to the map selector, where the map you're viewing is highlighted. (Click on a different square in the map grid to open a different map.)

One Window / Two Window

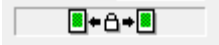


These two buttons, directly beneath the state overview, indicate how many map windows you have open (the maximum is two). If you have only one map open, you can click the two-map button and a duplicate map window will automatically open, showing the exact same map area. You can then zoom in or out on the one window, which lets you view the same map at two zoom levels at the same time. You might also use the second window to view a different map scale, for an even wider view of the area. Of course, the map windows don't have to cover the same geographic area—they can display any two maps you want.

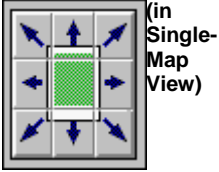
Tip: Another way to enter two-map mode is to use the **Open Another** button. If you already have one window open, the Open Another button appears for use whenever you perform any function that involves opening a new map (like using the Find menu, or opening a map from the map selector window).

Two Window Mode, Locked

When this button is pressed (and two map windows are open) they will be 'locked' to each other. This allows you to move the map in one window, and the centers of the two map will automatically match each other. This works regardless of map type, scale, or zoom level.



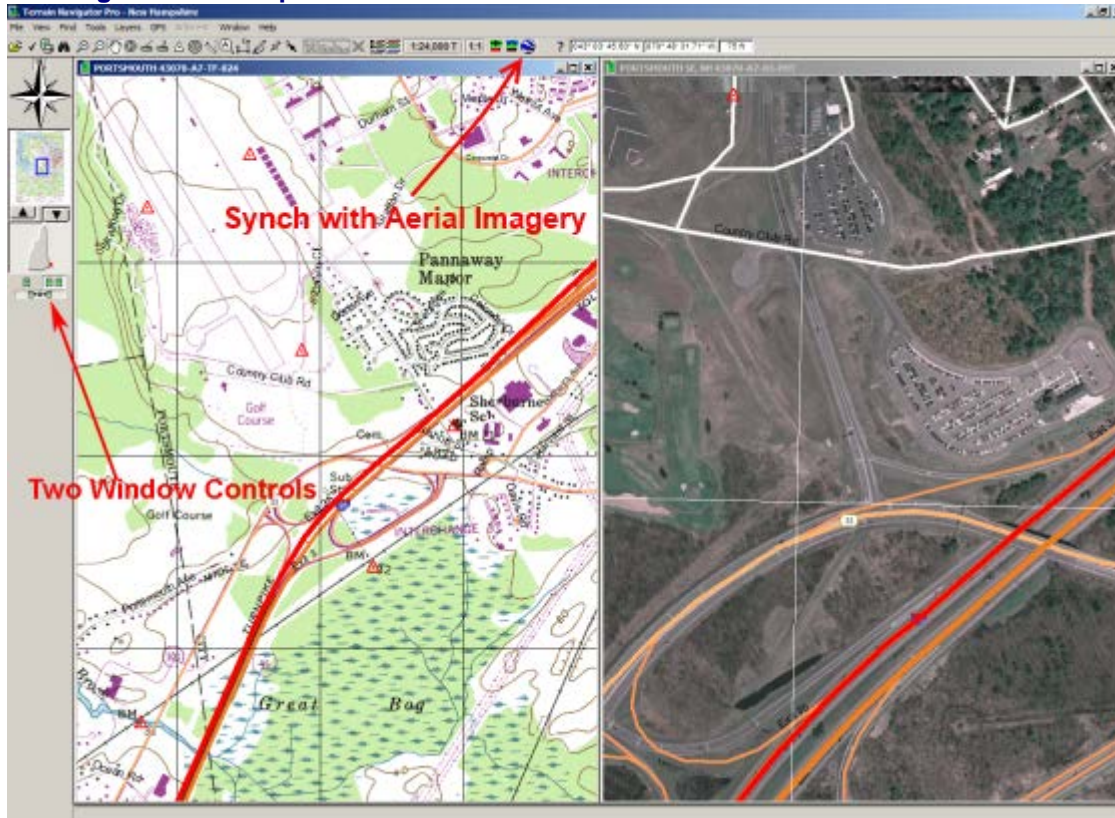
Adjacent Map Control



While in single-map view, you can use the *adjacent map control* to switch to any adjacent map. The square in the center represents the map you're viewing. To switch to the map directly to the north, click the square above center; to move east, click the map directly to the right, etc.

Tip: You can also use the **Adjacent** menu, which lists all adjacent map titles, to select adjacent maps by name. (The Adjacent menu only appears when you're in single-map mode.)

Working with Two Map Windows




Terrain Navigator Pro can display two map windows at once. This allows you look at two separate geographic areas, two map scales for the same area, or a topographic map, aerial photo, and/or Google imagery - both on the screen at the same time. You can also view two copies of the same map at different zoom levels.


Opening a Second Map Window

To enable *two-window mode*, open the **Window** menu, select **Two-Window Mode**, or use the buttons found in the compass bar on the left side of the screen. (Use **General Preferences** to hide or show the compass bar.)

These three buttons let you switch between one window mode, two-window mode, and two-window mode Locked.


 **One map window (standard mode).**

 **Two map windows.** Both windows can be panned independently, to show different geographic locations.

 **Two map windows, locked.** Panning the map in one window automatically moves the second map accordingly, to show the same location at all times. Zoom level and map scale may be adjusted as desired.

When a second map window is opened, it will automatically show the same view as the first window. You can adjust settings like zoom level and map scale separately for each map window. You can also set the second window to show a different area, except when the windows are locked as described above.

Synch with Aerial Imagery

 Press the Synch with Aerial Imagery (Earth button) on the toolbar to automatically open a second map window and lock it to the first. The type of imagery used can be specified in **File, Preferences, Google Earth**. This provides a one-click shortcut that is very useful when viewing USGS topographic maps along side aerial imagery (from either Google Earth, or the Aerial Photos included with the annual subscription.)


Viewing Layers

When viewing the same area in both windows, any layers added to one map will show up on both. Use the Layer Toggle button to show layers in one window and hide them in the second window. (Note: when synched with Google Earth, only **new** layers placed will appear in the Google Earth window. To show an existing layer in Google Earth, right click on that marker, route, or track and Send to Google Earth.)

Other ways to activate Two-Window mode:

- When using the Map Selector, select a map and click **Open Another**.
- When using the **Find** menu, click **Open Another** and the location you want will be opened in a separate window.

Working in Two-Window Mode

Use the **Window** menu to arrange map windows: choose **Tile Horizontally** to share the screen side by side, **Tile Vertically** to arrange maps one above the other. **Swap Windows** will trade positions with each other and **Close Active Window** will remove the active map (see below) from the display and exit Two-Window mode. You can also use the close map button:  in the upper right hand corner of the map window to close it. Finally be sure to check the slider control that appears as you cursor between the two windows; use it to resize the two windows revealing more of one and less of the other.

Two-Window mode is also very useful when split with a 3-D window.

The "Active" Map Window

With two map windows open, one is the *active* window and the other is *inactive*. The active map window is the one you were last working with, whose title bar is highlighted. Commands such as Print, Zoom In/Out, Seamless View, 3-D View, etc. are automatically applied to the active map window. If you have only one map window open, that window is the active window.

Replace Active/Replace Inactive

Any command that requires opening a map during two window mode gives you two choices: **Replace Active** and **Replace Inactive**. These two choices appear as buttons in the map selector window and in all of the "Find" windows. You can decide whether the new map should replace the *active* map window, or the *inactive* map window.

The default selection is Replace Active. If you don't choose either button - for example, if you just press the **Enter** key on your keyboard after using the Find menu, or if you open a map by double-clicking a map square in the map selector grid - the new map will automatically replace the active map window.

Tip: The tools for creating Routes and Tracks, along with the Distance Tool, can all be used across two map windows. This can be handy for creating a route that spans a long distance.

Custom Grid

Category: Custom Grid

Grid Spacing

Coordinate

Spacing X: 0.0002777

Spacing Y: 0.0002777

Magnetic

Spacing X: 2000 Feet

Spacing Y: 2000 Feet

Grid Line Properties

Width: [Line Style]

Color on topo maps: [Black]

Color on aerial photos: [White]

Terrain Navigator Pro lets you place grids on the map image, to serve as visual aids. The layer visibility window lets you opt to include a *fixed latitude/longitude (or UTM, PLSS, etc.) coordinate grid*, or a *custom grid*, that you can adjust yourself.

To specify the size and shape of your custom grid, open the **File** menu, choose **Preferences** and select **Custom Grids**. You may choose to place your grid lines in reference to the **Coordinate** system you have specified in general preferences, or you may place grid lines in reference to magnetic north (X represents the width of the rectangles, Y represents their height).

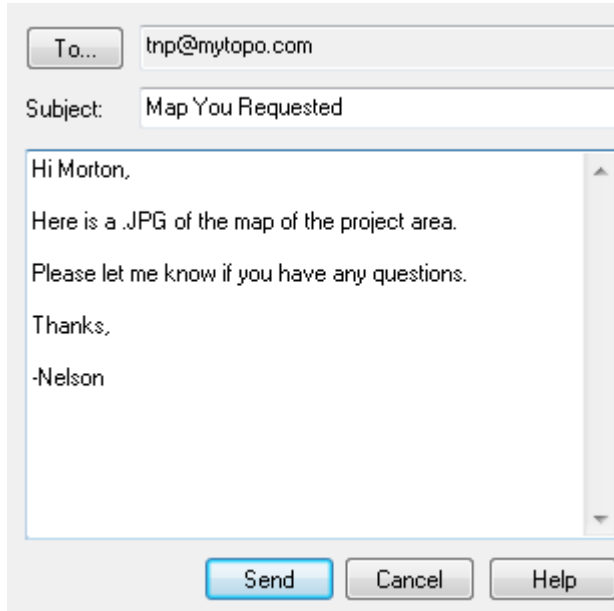
The **width** and **color** of the grid may be specified in the Grid Line Properties section. The color of the grid can be different when displayed on topographic maps or aerial photos. For example, black is commonly used for grids on a topographic map, while white is

most often used on aerial photos. Note that the colors used by the township/range (PLSS) grid are not adjustable.

Note: In order for the custom grid to be visible, it must be checked in the layer visibility window.

E-mailing Maps & E-mailing Map Links

To e-mail a .JPG image of the map on the screen, open the **File** menu and choose **Email Map**. Terrain Navigator Pro will take a picture of the map on your screen, save it as a .JPG file, and automatically open a blank e-mail message with the map image attached.



In the Email map window, press the **To** button to enter the email address. The email address window of the mail program in use on your PC (Outlook, Thunderbird, etc.) will open and allow you to choose from your address book.

Edit the *Subject* and the *message text*, then press **Send**. Note that Windows may require further confirmation to allow an external application to send an email on your behalf.

Due to restrictions that have been added to the Windows operating system, it is not possible to send emails directly from Terrain Navigator Pro; a *MAPI compatible* mail program must be used. This does mean that this sending feature may not be compatible with web-based email services (such as Gmail or HotMail.) Instead, use the publishing features found by opening the **File** menu and choosing **Print** to *export* the map as a .JPG image. Then attach the file to your email using whatever

email system you choose.

Notes:

- When you send a map, the .JPG file that you send will NOT be saved on your computer. If you want to save the image, export the map instead.
- If you need to send more than what shows on your screen, use the publishing features found by opening the **File** menu and choosing **Print** to *export* the map.
- Only Microsoft (MAPI) compliant e-mail applications (such as Outlook) are supported by this feature. To send maps via non-compliant e-mail applications or web-based service (such as Gmail,) use the publishing features found by opening the **File** menu and choosing **Print** to *export* the map or open the **File** menu, choose **Export > Copy Map to Clipboard**, and **Paste** the map into the email application (if copy/paste is supported.)

Sending Links

If sending or receiving e-mail attachments is not convenient, you can open the File menu and choose Email Link. Instead of sending an image file, Terrain Navigator Pro will send a link to this map on the MapServer, at <http://www.mytopo.com/maps>. The MapServer is a free online library of topographic maps and aerial imagery. The recipient of your message can click on the link to go straight to the MapServer and the same map image you're viewing.

An advantage of using the send link option is that the MapServer allows you to scroll in different directions and switch map scales and types - so the recipient of your message can not only see the

image you sent, but can also view surrounding areas. However, any layers you've added to the map will not be displayed.

To visit the MapServer, as well as a variety of other geo-centric web sites, be sure to explore the Web Links feature found in the Tools **menu**.

Undo

If you change your mind or make a mistake, you can undo the most recent change(s) made in Terrain Navigator Pro. To do this, open the **Tools** menu and select **Undo** (or press Ctrl Z on your keyboard).

The Undo function can be used to "delete" the last change made to any dynamic layer (such as markers, routes, tracks and labels) directly on a map. For example, if you move a marker on the map and decide you want to place it back in its original position, click **Tools, Undo**. The marker will revert back to its original position. However, in some circumstances, the last change will be reflective of a group of changes. For example, changing the color of a track three times in a row, then selecting Undo will revert the track back to its original color.

The Undo function can also be used to undo any changes made in an edit window. For example, if you make several changes to a route in the Edit Routes window and wish to cancel these changes after you have closed the window, open the **Tools** menu and select **Undo** (or press Ctrl Z on your keyboard). ALL changes you made to that route will be undone. However, if you make changes to more than one route, Terrain Navigator Pro will only remember the changes you made to the LAST route edited.

Please note that all file management functions (Save, Copy Maps to Hard Drive, Import or Export) CANNOT be undone.

When a project is being synchronized, the undo operation is limited in scope. Specifically, if a layer is accidentally deleted, it can be undone. However, if a layer is moved (renamed, or otherwise changed) that modification can not be undone. Should you wish to be able to undo these operations, turn off project synchronization for the active project.

Keyboard Shortcuts

Getting Help:

- Press **F1** (the left-most "function" key at the top of the keyboard) while viewing a map to open the contents of this interactive help manual. Also look for the Help button in every window, which will open the relevant page in this interactive help manual.

Map Viewing:


- Use your keyboard's **Control** key to temporarily switch to the drag/hand tool while you're using a different cursor tool.
- Press the **Shift** key to switch to the zoom out tool.
- Right-click the map for zooming options.
- Pressing **Backspace** erases the last-drawn distance, track or route segment. (Hold Backspace down to keep erasing.)
- Use your keyboard's **Delete** key to delete the current example of the active layer tool.

Tools and Editing:


- **Ctrl+A** Place marker at GPS location (during Tracking)
- **Ctrl+B** Find **B**ookmark
- **Ctrl+C** Copy object to clipboard: If a layer (such as a route) is selected, it will be copied to the clipboard. If no layer is selected, the map image currently in view will be copied to the clipboard.
- **Ctrl+E** Edit markers
- **Ctrl+F** Find: Search all placenames
- **Ctrl+G** Center map on **G**PS position
- **Ctrl+K** Start GPS Tracking
- **Ctrl+L** Tile map windows horizontally
- **Ctrl+M** Place a new **M**arker at the center of the screen.
- **Ctrl+O** Display Map Selector (the **O**pen Map window)
- **Ctrl+P** Open the **P**rint window
- **Ctrl+Q** Quick Print
- **Ctrl+S** Select a different US **S**tate
- **Ctrl+T** Tile map windows vertically
- **Ctrl+V** Paste layer (route, track, etc.) from clipboard. (Use in conjunction with CTRL+C)
- **Ctrl+Y** Toggle layers on/off
- **Ctrl+Z** Undo previous editing operation.

- **Shift+Left Arrow** While editing a route, selects the previous waypoint in the route.
- **Shift+Right Arrow** While editing a route, selects the next waypoint in the route.

Selecting Multiple Objects:

- In any import window (when importing a file, such as one for Markers, GPX, or Terrain Project Archives) hold down the CTRL and/or SHIFT key to select multiple files.
- Use the CTRL and/or SHIFT key to select multiple objects in the Export windows for Markers, Routes, Tracks, Labels, etc.
- Use the Export windows for Markers, Routes, Tracks, Labels, etc. to select multiple objects and copy them to the clipboard. Then, use **Layers, Change Project** and **Tools, Paste** to copy and paste multiple layers from one project to another.
- Use the CTRL and/or SHIFT key to select multiple objects in the send/receive windows for GPS transfers.
- Hold the SHIFT key in the windows for Edit Markers, Tracks, Routes, etc. and press the Delete button  (in the window, not on the keyboard) to delete ALL of the Markers (or Tracks, Routes, etc.) within that Project. For this feature to be available, be sure to enable the **Allow Delete All** option in **File, Preferences, General**.

Other Shortcuts:

- The **Preferences Button**  on the toolbar will open the preferences relevant to the currently selected cursor tool. For example, if you are using the marker tool, pressing the preferences button will open the preferences for markers.
- Use "drag and drop" to create GeoPins. With Terrain Navigator Pro open (but not "maximized" to cover the entire screen) open a Windows Explorer window (such as *Computer* or *Documents*.) Select one (or more) files you wish to create GeoPins for, then drag and drop (select, move, then release the mouse button) them into the Terrain Navigator Pro window. If the files are "geo-tagged" (pictures containing location coordinates) Terrain Navigator Pro will place them at the location they were taken.

Setting Up States and Regions: Configuration and Geographic Database Installation

Terrain Navigator Pro's installation on your PC consists of three parts:

1. The installation of the Terrain Navigator Pro software.
2. The configuration of Terrain Navigator Pro to accept any new map discs (CD or DVD.)
3. Copying the maps from the CD/DVDs to the PC's hard drive. (Optional.)

To install the Terrain Navigator Pro software, insert the Installer disc and follow the on-screen instructions.

During the installation of Terrain Navigator Pro, you will be prompted to configure it to read your collection of map discs. If you did not elect to do this, or wish to add additional states to an existing installation of Terrain Navigator Pro, open the **File** menu and select **Setup States and Regions**. During this configuration process, you will be prompted to insert the disc labeled 'Configuration and Geographic Database'. In older versions of Terrain Navigator Pro, this disc was labeled 'Geographic Data Enhancement' - if you have one of these CDs, use it instead.

Once Terrain Navigator Pro has been configured to read the map discs for your State or region, you can copy these maps to the local hard drive. This is the final (optional) step of the process of setting up states and regions. If you elect to store the maps on your hard drive, you will be prompted to insert each Professional USGS Topographic series disc and the computer will copy that disc to the hard drive where Terrain Navigator Pro is installed. If you do not choose to store the maps on the hard drive during the configuration process, use the Map/Photo Management function under the **File** menu in Terrain Navigator Pro to accomplish this.

Remote Utility

Introduction

MyTopo's USGS Map series are an invaluable source of digital cartographic information. On occasion, one may wish to access these maps remotely from another application. We have included REMOTE.EXE, a separate application, to call Terrain Navigator Pro for viewing a particular coordinate or map.

REMOTE.EXE

This utility is used to pass commands to the Terrain Navigator Pro. It accepts command line arguments (such as a latitude/longitude) and sends these parameters to Terrain Navigator Pro. We do not recommend using REMOTE unless you are familiar with DOS command line applications.

You can call REMOTE from any application that supports the running of another application. Typically, this is done with a "RUN" command.

Using REMOTE in conjunction with another program can link your library of maps to a wide variety of applications, including databases, GPS/NMEA feeds, and other location software.

Using REMOTE

REMOTE.EXE is found in the program directory of Terrain Navigator Pro (\TERPRO). Because REMOTE is a free-standing application, you may move/copy it to any location you wish. Obviously, you may want its location to be included in your DOS search path so that another application will be able to find it easily.

Arguments

REMOTE accepts the following command line arguments:

- A Position and size window (xpos ypos xsize ysize).
- H Gets height at center of screen. Can be used with -L to get height at the coordinates. Requires file name to write height to, or 'STDOUT' to write to standard output.
Note: The file is overwritten (not appended to) each time -H is used.
Note: The output is always in Feet.
- L Latitude/Longitude (in Decimal Degrees). Use negative numbers to specify South or West values.
- N USGS Map Name.
- R USGS Reference Code.
Note: The -L, -N, and -R options are mutually exclusive.
- W Open map in new window (or replace inactive map if two maps are currently being displayed.)
Note: Only applies when a map is being opened via -L, -N, or -R.
- I Iconify window [options: 0 (minimize), 1 (restore), 2 (default), 3 (maximize)]
- J Open the project with the given name.
- K Closes all map windows (can be used exclusively, or in conjunction with -L, -N, or -R to close two maps, then open a single map).
- P Path to the location of the EXE (including the EXE).
Applies only when using REMOTE to start the Viewing Software in an obscure location, or if multiple versions of Terrain Navigator are installed.
- Q Quick Print the screen area.

- s Scale to show map.
Values: 24000 = 1:24,000/1:25,000 scale; 100000 = 1:100,000 scale
Also: 12000 = Aerial Photos
- T Track Latitude/Longitude (in Decimal Degrees). Use negative numbers to specify South or West values. Speed in MPH and heading true north. The GPS tracking icon will be displayed at the given location and heading. If speed is 0, the tracking icon will turn into a circle. If latitude > 90 the icon will be removed. (See usage example, below)
- v Do not display errors messages with blocking windows.
- x Exits Terrain Navigator Pro.
- z Zoom mode to show map.
Values: 0 = 2:1; 1 = 1:1; 2 = 1:2; 4 = 1:4; -1 = Use current mode

Note: Arguments may be in upper or lower case.

Usage Examples

REMOTE -L 43.0358333 -70.8438889

Opens a map and centers on 43 02' 09"N 70 50' 38"W Don't forget to add a "-" before any South or West coordinates.

REMOTE -N KITTERY -S 100000

Opens the 1:100,000 scale "KITTERY" map.

REMOTE -N "ROCKY POND" -Z 2 -S 24000

Opens 1:24,000 scale map "ROCKY POND" and displays it in the 1:2 zoom mode.

Note: Enclose map names in quotes to accommodate any spaces in the map name.

REMOTE -R 43068-G7-TF-024 -Z 4 -Q

Opens the map known as USGS Reference Code "43068-G7-TF-024" zooms out to 1:4, then does a Quick Print.

REMOTE -S 100000

Goes to the 1:100,000 scale map directly 'above' the current map.

Note: There was no -L, -N, or -R. They are not required if you wish to perform a SINGLE operation on the current map.

REMOTE -P "C:\Program Files\MyTopo Terrain Navigator Pro\TerPro\terpro.exe"

Launches the copy of Terrain Navigator Pro in the specified directory.

REMOTE -L 43 -71 -P "C:\Terrain Pro\TerPro\TERPRO.EXE"

Starts the copy Terrain Navigator Pro in the indicated path, opens a map, and centers it on 43N 70W.

REMOTE -L 43.0358333 -70.8438889 -H C:\Temp\HFile.txt

Opens a map, retrieves elevation of 43 02' 09"N 70 50' 38"W, and writes that elevation to C:\Temp\HFile.txt.

REMOTE -T 43.0358333 -70.8438889 10.0 350.0

Opens a map and puts up the tracking icon at 350 degrees.

REMOTE -T 99 99 0 0

Removes GPS Tracking Icon from the display.

Terrain Navigator Pro

REMOTE -A 10 20 400 600

Positions the Terrain Navigator Pro window 10 pixels down and 20 pixels over from the upper left hand corner of the screen, then sizes the Terrain Navigator Pro window to be 400 pixels wide by 600 pixels tall.

REMOTE -I 0

Iconifies the window down to the task bar.

REMOTE -I 3

Maximizes the window.

REMOTE -J MyProject

Closes the active project, opens 'MyProject'.

Notes

- If Terrain Navigator Pro is not running, REMOTE will start it automatically. You may wish to deselect the "Show at Startup" option in the Open Map Selector if you start the Viewing Software via Terrain Navigator Pro.
- When going to a Lat/Long, the Terrain Navigator Pro will search its entire library for the desired location. For Name or Reference Code, the search will be limited to the current state.
- When entering coordinates into REMOTE, use the "Decimal Degrees" format.
- Remember to specify a Negative value for degrees South or West.
- If you do not specify a scale (-S option), Terrain Navigator Pro will use the current scale. This may cause erratic results.
- If necessary, REMOTE.EXE can be renamed (without consequence) to resolve conflicts with other applications that might share the same name.

Error Codes

REMOTE returns the following error values:

- 0 - Map loaded OK.
- 1 - Map not found.
- 2 - Terrain Navigator Pro can not be started (or not running.)
- 3 - Unknown argument passed.
- 4 - Bad Command Line.

Disclaimer

We created the REMOTE utility for two reasons: a user asked for it and we thought it would be a fun little exercise for us. Although we do welcome use of this utility, we cannot supply exhaustive support for its use. We ask that REMOTE support questions be directed via email to tnp@mytopo.com. We can not support REMOTE via telephone, nor can we debug applications that call REMOTE - it would simply take time away from our staff working on additional interesting features to Terrain Navigator Pro.

If you have any specific features you would like added to REMOTE for your application, feel free to email your request to us. However, please realize that we are not planning to put a major development effort into REMOTE.

Finally, if you come up with something interesting you've used REMOTE for, please let us know. This sort of feedback helps us determine which features our users would like to see incorporated directly into our topographic map software.

Distance/Area Tools

Distance Tools

Use the *distance tools* to quickly measure distance or area. There are two distance tools:



Use this tool for straight-line measurements, including segment length and bearing and total length.



Allows curved line measurements.

Select either distance tool and click a starting position on the map. Click again, and a distance line will join the points clicked. Add as many segments as you like. When you click and hold the mouse button down, the total **Path Length** is noted at the bottom of the screen in the dashboard help line as you add segments. If you're using the straight-line distance tool, you'll also see **Segment Length** and **Bearing**.

Tips for Using the Distance Tools

- To back up and erase the last segment you drawn, click the **Backspace** key on your keyboard. Press backspace multiple times to remove more of the line.
- To temporarily switch to the drag tool, hold down the **Control** key on your keyboard.
- To delete the entire line, press the **ESC** key or press the Delete button.
- To create curved lines with the freehand distance tool, just click-and-drag the cursor.
- To save a distance line, convert it to a track.
- To specify different units (metric vs. english) in the dashboard help line while using the distance tool, use *Preferences, Coordinates*.

Getting Measurements

The screenshot shows a dialog box titled "Distance Information" with a close button (X) in the top right corner. The dialog contains the following information:

Start:	043° 02' 38.68" N	070° 51' 21.91" W
Start elevation:	32 feet	
End:	043° 02' 10.26" N	070° 50' 22.20" W
End elevation:	46 feet	
Projected Distance:	1.898 miles. 3.055 kilometers.	
Projected Area:	No area (unclosed path)	

At the bottom, there is an "Options" section with three buttons: "=> Profile...", "=> Route...", and "=> Track...". Below these are three more buttons: "Clear", "Continue", and "Help".

To find out the line's length, right-click the distance line and choose **Information** (or press the Information Button.) A window will provide total distance, along with the approximate elevation of the start and end points. If the line forms an enclosure, the Information box will provide the enclosure's area. (The area calculation will only work if the start and end points meet: that is, if the entire line forms an enclosure. If only a portion of the line forms a loop, no area calculation will be given.)

To continue adding segments to the line, click **Continue**.

To close the information window and delete the distance line from the map, click **Clear**.

Other buttons in the information window let you view the line's profile, or convert the line into a track or

route

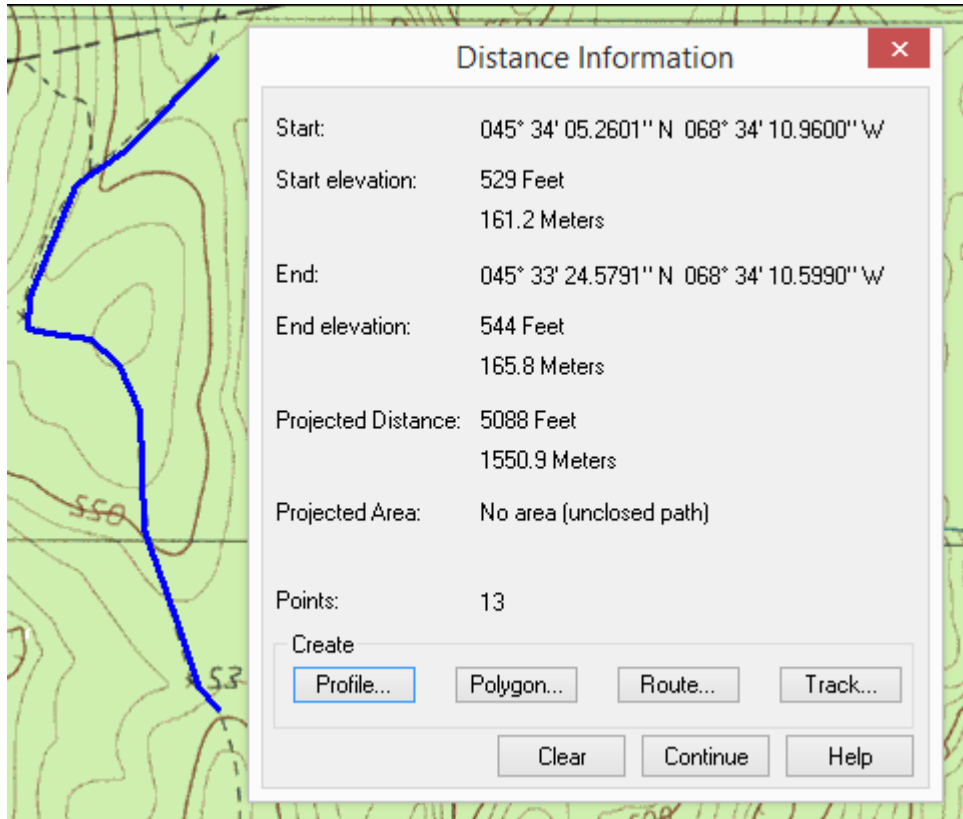
Notes:

- Distance can be measured over multiple maps. Seamless view is the quickest way to move from one map to the next; in single-map view you can simply open another map, or use two-window mode to view two map windows at once.
- You can switch between the freehand distance tool and the distance tool during the same measurement. This can be useful for calculating distances whose path varies between straight and curved sections.

Finding Distance/Area

To get precise statistics about a distance line, right-click the line and choose **Information** (or press the Information Button, or use the Information Tool.)

The information window gives you the **Projected distance** of your distance line, in the units specified in the Unit Preferences. *Projected* distance is "as the crow flies"—it does not take ground contours into account. For ground distance, click Profile.



Projected area is also given IF the entirety of your line forms an enclosure. The start and end points must meet, and the line must not cross back over itself or overlap. If only a portion of the line forms a loop, area calculation is not possible.

In addition to line length, the Information window gives you the exact coordinates and approximate elevation of your distance line's starting and ending points.

To view a cross-section profile of your distance line, press Profile to create its side-view profile.

Since the Distance Tool is designed for quick (temporary) measurements, you can create other layers to be stored in the active Project. These layers include:

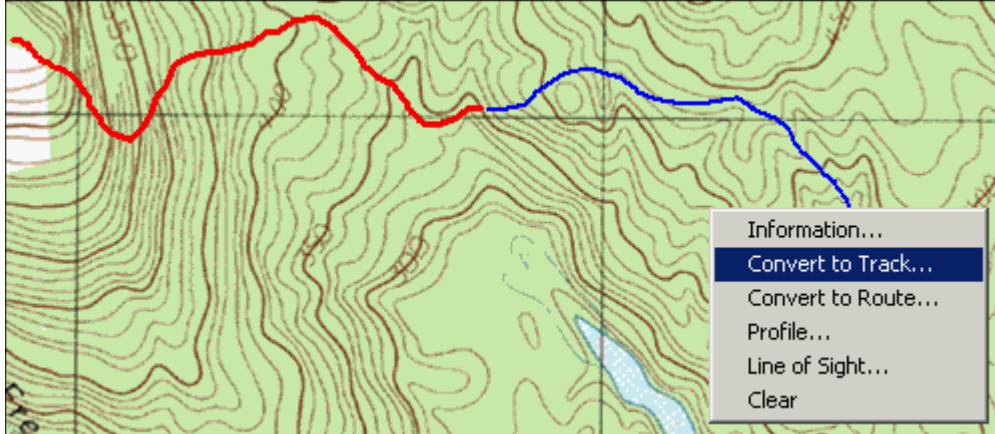
Polygon: Create a polygon based on your distance line. Several methods are provided.

Route: Create a route based on your distance line. Several methods are provided.

Track: Save your distance line as a track, so it can be kept for future reference.

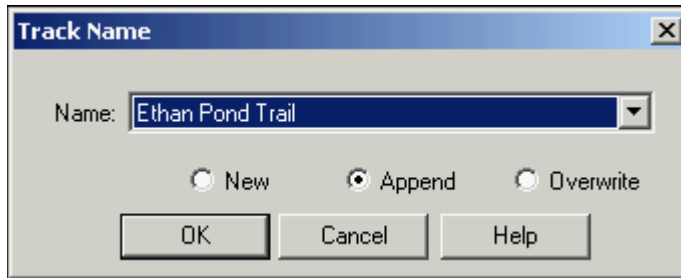
Note: To *continue adding segments* to your distance line, click **Continue** (or just click the "X" button on the Information window's title bar to close the Information window). To *erase the distance line*, click **Clear**.

Converting the Distance Line into a Track



The distance tool is used for measurement, rather than map annotation. Therefore, distance lines are not saved on the map image. However, if you wish to save the path created by the distance line, you may convert it into a track, which *will* be saved.

Right-click the distance line and choose **Convert to Track**. This feature lets you create an entirely **New** track, **Append** to an existing track, or **Overwrite** an old track and replace it with a new track of the same name.



Appending to a Track

To append to a track, select either distance tool, and draw a distance line continuing from the end of the track line. When finished, right-click the distance line and choose **Convert to Track**.

In the track name window, choose **Append**. The Name blank will then become a drop-down list of all your existing tracks. Select the name of the track to which you want to attach this

distance line. The distance line will be added to the end of the track.

Overwriting a Track

The Name drop-down list also appears when you **Overwrite** a track. Select the name of the track you wish to replace, and it will be overwritten with a new track of the same name.

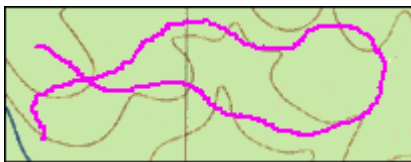
Calculating Track Area

To find the area of a track, right-click on the track line and choose **Toggle Loop**. (Note, Be sure to right-click exactly on the track line itself, otherwise the Toggle Loop function will not appear in the context menu.) This will loop the end of the track to its point of origin - creating a closed polygon. Next, right click on the track and choose **Information**. If available, the track area is noted in the second column.

Common Issues with Track Area Calculations

There are certain conditions that prevent track area calculation. These are:

The track line crosses back over itself



Area can only be calculated if the track forms a single enclosure or "loop." If the track line crosses itself (as in a figure-8 pattern), then the area cannot be calculated. To get around this problem, you can either use the Distance tool to retrace the line (being careful not to cross over) and get the area from Distance Information instead. Or, you can convert the track line into a Route and move waypoints as necessary

to best imitate the track line (again, without crossing over the line).

The track does not form a single enclosure

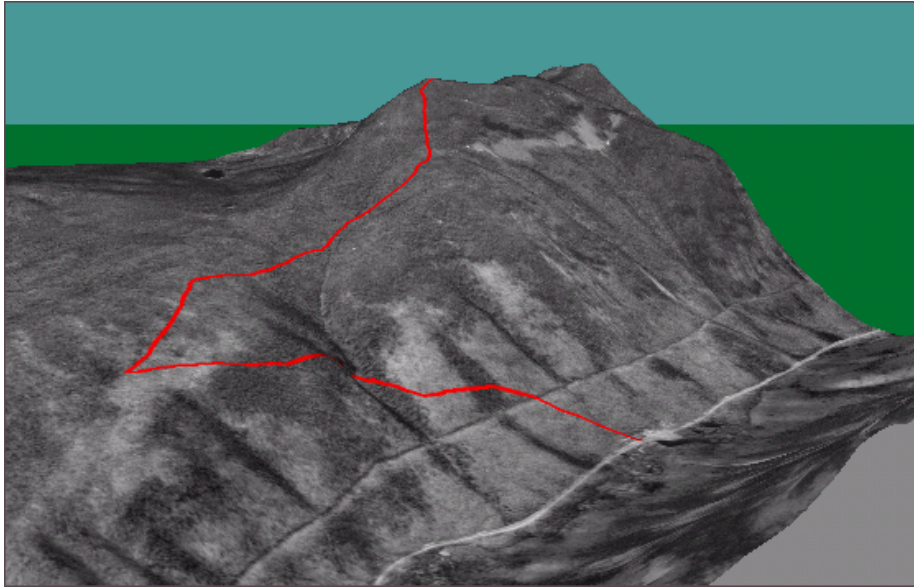


If the end of the track line doesn't meet the beginning, area cannot be calculated. Nor can area be calculated for multiple enclosures formed by a single track line: the track line must form a single enclosure in order for area to be calculated. Use the Track tool to add on to the track line and close the loop. Note: Be careful not to overlap the line, or you may run into the problem: The track line crosses back over itself. (see above)


If you find these problems happen frequently to you, you might want to consider using the route tool instead for your area calculations. Routes are made up of segments, and the waypoints joining these segments may be repositioned as necessary, which makes routes easy to use for the purpose of calculating ground area.

3-D View

3-D View



Elevation changes on a topographic map are represented by contour lines. 3-D view gives an additional way to get a sense of the terrain.

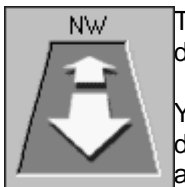
 Click the 3-D button, and the area you're viewing will be displayed in 3-D. Special controls along the left side of the screen let you view the terrain from any angle, including from above. (Note: These controls can be hidden or shown by opening the **File** menu, choosing **Preferences, General** and selecting **Show Compass Bar**.)

Moving North, South, East and West



Use the Compass Rose in the upper left hand corner to move the 3-D area to the North, South, East, or West. In the thumbnail view (just below the compass rose) the blue box indicates the view area, and a red dot indicates your vantage point as you rotate the image.

Zooming In/Out



These arrows zoom in and out on the landscape. The notation above the arrows displays the direction in which you are looking.

You can choose whether the arrows should move your viewpoint, or move the landscape. The default setting is for the arrows to move your viewpoint, which means that if you click the top arrow, you'll be moved in closer. Click **File > Preferences > 3-D** to change the way these arrows

work.



Raising/Lowering your Viewpoint

Drag this sliding lever to adjust the height from which you are viewing the map. The three vehicles give you an idea of the height of your viewpoint.

Rotation/Steering



These arrows adjust the angle at which you are viewing the landscape. You have two choices for how these arrows work: they can either move you (your viewpoint), or they can move the landscape. This setting also controls the zoom in/out arrows, above. Click **File > Preferences > 3-D** to change the way these arrows work.

When you first start Terrain Navigator Pro, the arrows are set to refer to your viewpoint. For example, suppose the map is centered on a summit. To view the summit from the right, click the right arrow. This will rotate the map, giving the effect that you are moving around the summit, to your right. To view the map from higher up, click the up arrow.

Each time you click an arrow, the map image shifts slightly. Click the arrows as many times as you need to find the angle you want.

Height Exaggeration Buttons



These buttons exaggerate the vertical scale of the 3-D display. For example, click the Up arrow to increase the vertical scale, and accentuate height differences in areas that are relatively flat. If you're viewing a particularly mountainous region with deep valleys, you may want to decrease the vertical scale (with the down arrow), to make it easier to read map data along steep slopes.

The exaggeration amount is shown on the toolbar in the top right corner of your screen (next to the latitude/longitude display). The default setting is 1.5x. This means that the elevations depicted are shown at 1.5 times their actual value. This makes elevation differences easy to distinguish, with minimal distortion.

Tip: To change how the 3-D controls work, or to specify different initial settings open the **File** menu and **choose Preferences, 3-D**.

3-D Glasses



What's 3-D without 3-D glasses? We could not resist adding this feature, just for fun. Put on your 3-D glasses (included), click this button, and enjoy the view. **Note:** Map rotation is not possible in 3-D glasses view.

Viewing a Different Area of the Map

In 3-D View, Terrain Navigator Pro shows a portion of the topographic map. Use the 3-D Preferences to adjust the size of the 3-D area (based on your computer's capabilities.) To view a different portion of the map, do one of the following:

- Change zoom level (click one of the four zoom level toolbar buttons)
- Change to a different map scale (again, use the toolbar), or
- Use the map overview or the compass control to move to a different area of the map.

Using the Cursor to Rotate/Tilt the Map

You can rotate and tilt the map image by clicking and dragging the cursor in the direction you want the map to turn. To get a sense of how this works, imagine that you are reaching out and taking hold of the map's foreground, and moving it by hand. If you click and drag to the right, the map will rotate counter-clockwise. Click and drag up and the map's foreground will rise, bringing your viewpoint level down closer to the surface of the terrain.

3-D Landscape Effects

Change the light setting in 3-D preferences to apply different effects to the 3-D display. View the landscape in fog or by moonlight, or replace the map image with a wire frame or white shading to accentuate the relief.

Making a 3-D Video Clip

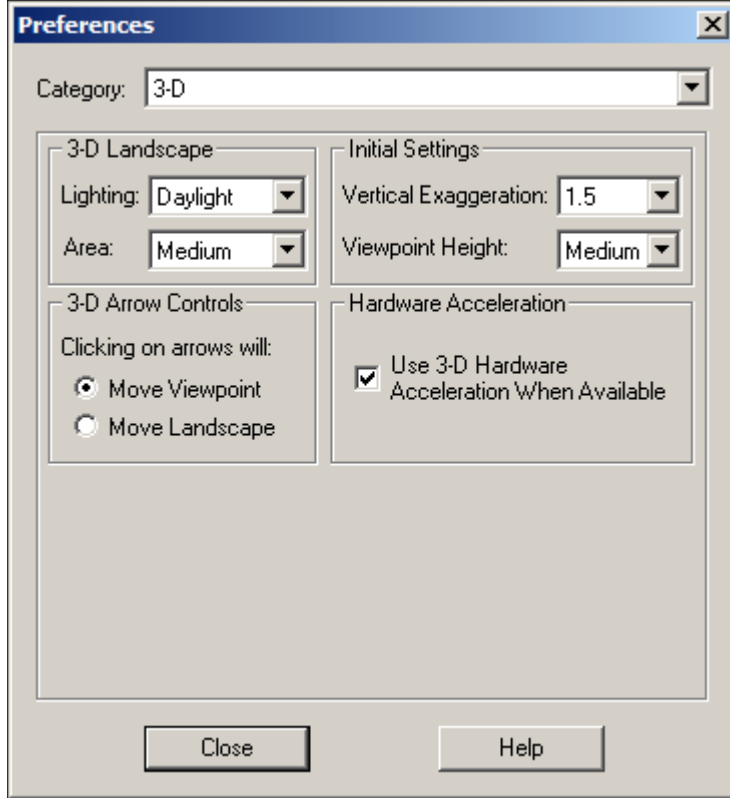


There are two video rendering options that can be used to create incredible clips of your terrain. Press the Video button on the bottom of the Compass Control Bar to render a simple rotation video that will show the landscape rotating in 3-D. For a more powerful clip, open the File Menu and choose Export Route as Video Clip.




To return to regular 2-D map view, just click the 3-D toggle button again.

3-D Preferences



Open the **File** menu and choose **Preferences, 3-D** to configure options for viewing maps in 3-D.

Press the **3-D View Button**:  on the Toolbar to view maps in 3-D (or open the **View** menu and Choose **3-D**.)

3-D Landscape: Lighting

Apply different effects to the 3-D landscape. Use these options to improve contour visibility, or to simulate different weather conditions or times of day.

Daylight: The standard lighting mode. (This is Terrain Navigator Pro's original default 3-D lighting mode.)

Fog: Shrouds the landscape in a simulated fog. Fog is thickest at the most distant portions of the map.

White: The map image is removed, and the landscape is shown in white and shades of gray.

Moonlight: Darkens the terrain.

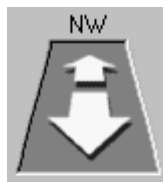
Wire Frame: The map image is replaced by a "wire" mesh pattern. Removing the map detail helps draw attention to the contours.

Overhead: Positions the light source directly over the map, changing the shadows. Overhead lighting is useful for brightening relatively flat areas, so map details are highlighted better.

3-D Landscape: Area

Choose **Small**, **Medium** or **Large** for the size of the map area to be displayed. On some older computers, a large area might slow performance. If the 3-D rotation/tilt controls seem slow, choose **Small**. To improve performance try updating your video display drivers.

3-D Arrow Controls



This setting affects how the 3-D arrow controls respond. Choose whatever movement method you find more intuitive.

Move Viewpoint in Direction of Arrow:

When this option is checked, the arrows represent the direction in which you want to "go"-as though you were at the controls of an airplane or a car. For example, clicking the right arrow will move your viewpoint to the right. Clicking the in arrow will move you closer in to the map image. (This is Terrain Navigator Pro's default setting.)



Move Landscape in Direction of Arrow:

This produces the exact opposite effect as the one described above. The arrows refer to the map image itself (rather than your viewpoint). So, if you click the right arrow, it's as though you are reaching out and spinning the map image to your right. Likewise, clicking the in arrow is like pushing the map away from you, which gives you a broader view of the area.

Initial Settings: Vertical Exaggeration

Vertical exaggeration emphasizes contours, making it easier to distinguish differences in relative heights. Terrain Navigator Pro's default setting is 1.5, meaning that all elevations are shown at 1.5 times their actual value.

The lowest setting available is 0.5, which downplays the elevations, showing all contours at half their true height. Choose varying degrees of exaggeration, up to 5 times the actual height. High exaggeration is useful for emphasizing contours in relatively flat areas.

Since this is an *initial* setting, this means that the setting you specify will automatically be used whenever you first enable 3-D View. You can increase and decrease the Vertical Exaggeration manually while viewing the 3-D image by using the Vertical Exaggeration buttons on the bottom of the 3-D Compass Control Bar; this setting is what Terrain Navigator Pro will use for your initial 3-D view.

Initial Settings: Viewpoint Height

Select a viewing angle for Terrain Navigator Pro to use when you first start 3-D View. Choose **Ground**, **Low**, **Medium**, **High**, or **Very High**.

Since this is an *initial* setting, this means that the setting you specify will automatically be used whenever you first enable 3-D View. (You can adjust the Viewpoint Height in the 3-D view by dragging the control on the 3-D Compass Control Bar, but this is what Terrain Navigator Pro will use for your initial 3-D view.)


Hardware Acceleration

If your computer system provides this option, check here to tell Terrain Navigator Pro to take advantage of this feature. You may find that you need to update your video drivers before you can take advantage of Hardware Acceleration. Turn off Use 3-D Hardware Acceleration When Available, in the event that your 3-D display is erratic or unpredictable. This also can commonly be used to correct incompatibilities with certain video cards. Common examples include the inability to use the 3-D Glasses display option.

Recording a 3-D Rotation Video Clip

You can record an .AVI video file of any 3-D landscape, shown in 360° rotation. You can also record a route video clip, showing the landscape while progressing along the route line.

To record a rotation video clip:

1. Find the location you want, and enter 3-D View by clicking the 3-D toggle button.
2. Adjust the viewpoint angle and zoom level to the desired settings.
3. Click the video clip button  at the bottom of the 3-D control panel, or open the **File** menu and choose **Export, Rotation Video Clip**.
4. Assign a name to the video file, and specify a location to save it. Click **OK**. The landscape will start rotating and recording will begin.

In a few moments, the .AVI animation will be completed and saved. Note that .AVI animation files can grow to be significantly large in size.

Recording a 3-D Route Video Clip

Terrain Navigator Pro lets you record 3-D animation files showing the landscape along a route, as seen from an adjustable "camera" height and angle. The imaginary camera will always be stationed on (or directly above) the route line, but you can control where the camera points as it moves along the route.

Click **File > Export > Route Video Clip**. Highlight the route you want and click **Select Route**.

Next, set options for camera viewpoint and clip details:

Camera Height

Specify how many feet above **Sea Level** or **Ground**. When positioned in reference to sea level, the camera will remain at a fixed height. When positioned in reference to the ground, the camera will move up and down as the contours beneath it change.

Camera Tilt

Tilt adjusts the angle of the camera and determines whether the lens should point up, down, or straight ahead. Specify an angle and select **Up** or **Down**.

When the camera height is measured from sea level (see above), the Tilt setting is applied to an imaginary horizontal line (0 degrees). Examples: To look straight ahead, specify an angle of 0 degrees. To look straight down, set the tilt at 90 degrees down. To look down at an angle, set tilt between 0 and 90 degrees Down.

When the camera height is measured from the ground, the camera will automatically be tilted along an imaginary line that follows the contours of the landscape. For example, if the route ascends a 10% grade, the camera will automatically tilt 10 degrees up. The angle that you type here will be applied in addition to

the tilt angle already determined by the landscape. If you specify 0 degrees, no adjustment will be made, and the tilt of the camera will match the grade of the landscape. If you specify 5 degrees up, the camera will ascend a 10% grade tilted at 15 degrees ($10 + 5 = 15$). If you specify 5 degrees down, the camera will ascend a 10% grade tilted at 5 degrees ($10 - 5 = 5$).

Camera Heading

There are three options for setting the direction in which the camera points:

- **Always look in this direction:**
Specify a heading in which the camera should face. This is like moving along the route, while keeping your gaze focused in a particular direction. For example, to continually face northeast, specify 45 degrees. To face south, specify 180 degrees.
- **Follow route line with offset of:**
As always, the camera will travel along the route line, but this option lets you point it in a direction measured from the route line. Examples: To keep the camera pointed straight ahead on the route line, specify an offset of 0 degrees. To point it off to the right, set an offset of 90 degrees.
- **Always face specific point with offset of:**
Select this option to record progress along the route while keeping the camera focused in reference to a specific point. Type the coordinates of the point in the space provided.

To keep the camera trained directly on the point, set an offset of 0 degrees. For example, imagine hiking on the slopes around a summit. An offset of 0 degrees will keep the summit constantly in view, at the center of the 3-D landscape.

For a 3-D view that shows the summit off to one side, set an offset angle wide enough to move the summit to the edge of the landscape. For example, if you're following a route that encircles a summit counter-clockwise, an offset angle of 30 degrees would shift the focus to the right of the summit, moving the summit itself off to the left of the display. The effect of an offset angle will vary, depending on the distance between the route line and the point you have specified. You may need to experiment with different offset angles to achieve the view that you want.

Clip Details

There are three options for setting various properties regarding the construction of the video clip:

- **Duration:**
Set the number of frames contained in the finished clip, the speed of the camera, or the duration of the clip playback.
- **Frames per second:**
The more frames per second, the smoother the animation. Keep your computer's graphics capabilities in mind when setting this figure. The default setting is 15 frames per second.
- **Frame size:**
Determines how much map area to show in the animation. Set this according to your computer's graphics display capabilities. The default setting is medium.

Options

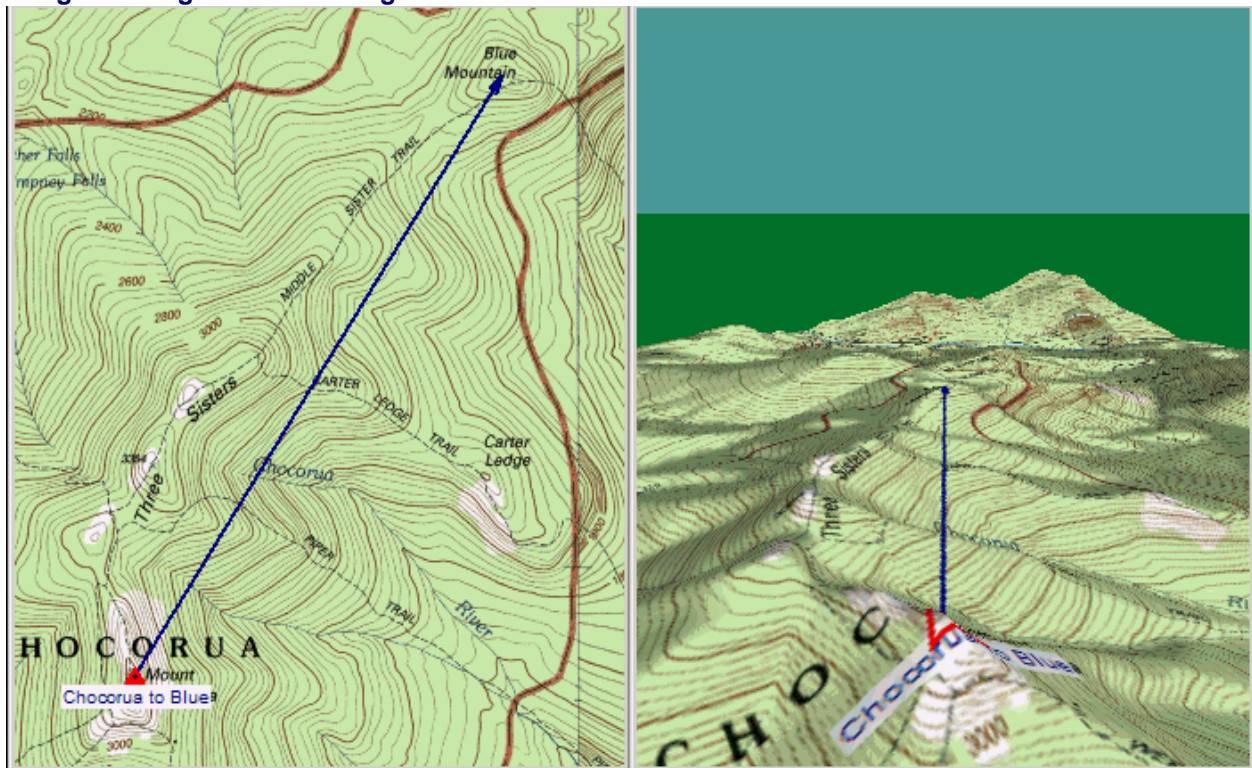
There are three options for specifying miscellaneous settings:

- **Bank camera on turns:**
Lean the camera to the right for right turns, to the left for left turns.
- **Smooth view when turning/tilting:**
Instead of switching the view immediately from one heading to the next, include views from intermediate headings for a smoother visual effect.

- **Show route on map:**
Include the route line, waypoints, and any visible waypoint names on the 3-D landscape in the animation.

Once you are satisfied with your settings, click **OK** to assign a name to the video file, and specify a location to save it. Click **OK**. The landscape will start changing on the screen, and recording will begin. In a few moments, the .AVI animation will be completed and saved. Note that .AVI animation files can grow to be significantly large in size. Terrain Navigator Pro automatically splits the .AVI animation file into smaller portions in cases where the single file size will be unmanageably large (greater than 2 Gigabytes.)

Range/Bearing Lines: Viewing in 3-D



To view a range/bearing line in 3-D, right-click the range/bearing line and choose **View in 3-D**. Terrain Navigator Pro will split the screen with a 3-D view automatically aligned to show the view from the start point to the end point.

Updating Your Video Card Drivers

Video card manufacturers routinely update their drivers. You can download the latest drivers from your video card manufacturer's web site. It is a good idea to check every so often to make sure you have the latest drivers available.

To find out the make and model of your video card, click **Start > Settings > Control Panel, Display**, select the **Settings** tab, click the **Advanced** button, and select the **Adapter** tab. This window displays the manufacturer of your video card, the model name, and the version of the driver ("software version"). You may want to make a note of this information for reference.

Next, visit the manufacturer's web site. Typically, you can select your video card model from a list (usually found in the site's Support or Downloads section). Check to see that the driver version listed for your model matches the driver version that you're using. If it doesn't, you need to download and install the latest driver. Follow the instructions on the manufacturer's web site.

Note: There are two types of generic 3-D rendering methods available for use by graphics programs: OpenGL and DirectX. Terrain Navigator Pro uses the OpenGL rendering model to create 3-D View. Therefore, look for a driver that supports OpenGL rendering.

Things you may run into:

"Uncertified" drivers

Video card manufacturers often distribute additional drivers classified as "uncertified," "unsupported," "special purpose," or "beta" drivers. These drivers may not have received the same extensive quality-assurance testing as the company's retail/generic drivers. It's also a common practice to provide beta versions of drivers that may still undergo some modifications before their official release.

Generally speaking, these are drivers that the manufacturer makes available for you to use if you like, but the manufacturer cannot offer technical support for their use. If you decide to try such a driver and find that it causes display problems, you can follow the manufacturer's instructions to uninstall the driver and install the generic, supported driver instead. It is up to you to decide what drivers to install. Read all information provided before downloading any drivers.

Driver requires DirectX

Produced by Microsoft, DirectX is an extension to a computer's operating system that allows applications to communicate directly with the display controls. Applications that support DirectX can take advantage of this direct communication, resulting in faster display. Computer games often use DirectX.

If you try to install your new driver and you receive a message that DirectX is required, a download is available at Microsoft's website: <http://www.microsoft.com/directx/>

If you are unable to find suitable drivers at your video card manufacturer's web site, try the web site of your computer manufacturer. Computer manufacturers often distribute the latest drivers for components of their computer systems.

Once Your Video Card Drivers Have Been Updated:

Once you have downloaded and installed the latest available drivers for your video card, restart your computer and open Terrain Navigator Pro. Click File > Preferences > 3-D and make sure that the

Hardware Acceleration box is checked. If the speed of your 3-D display is not improved, there are a few more things to try:

- For some video cards, hardware acceleration is only available under certain system configurations. Try changing the display colors setting: Right-click the desktop and choose **Properties**, then select the **Settings** tab. Under **Colors**, specify a different setting, and see if 3-D view is improved. Also in the Properties/Settings window, click the **Advanced...** button, and select the **Performance** tab. Slide the Hardware Acceleration lever to "Full."
- Try displaying a smaller area of terrain: click **File > Preferences > 3-D** and under Area, choose **Small**.

If Your 3-D Display is Still Not Working:

Terrain Navigator Pro's 3-D view performance is limited to the capabilities of your video card. If you have followed all of instructions above, you have done everything possible to ensure that Terrain Navigator Pro's 3-D view is operating at the maximum performance level provided by your computer system.

Remember to keep an eye out for updated video card drivers, so that you can take advantage of any future driver improvements.

Hardware Acceleration

The speed and performance of 3-D view depends largely on your computer's video card. The video card is the component of your computer that controls display performance and speed. Video cards are powered by drivers. To ensure that 3-D display performance is maximized, you should maintain updated video drivers. Choose **3-D Accelerator Info** from the Help menu to get details on your video card make and model, and the status of its drivers.

About Video Drivers

There are two types of drivers:

Software drivers: All video cards have software drivers. Provided by Microsoft, these drivers generally work well but some applications may still experience a slow display. The 'Large' 3-D view preference is not available when software drivers are in use.

Hardware drivers: Some video cards have hardware drivers (in addition to software drivers). Hardware drivers are designed to provide a faster display. A video card's ability to use hardware drivers is called *hardware acceleration*.

Terrain Navigator Pro's 3-D view mode is pre-set to take advantage of hardware acceleration if possible: click **File > Preferences > 3-D** and you'll see that "Use 3-D Hardware Acceleration When Available" is checked. This means that if your video card has working hardware drivers, it will use them.

Getting Information about Your Video Card and its Drivers

For information on your video card's settings and capabilities, choose **3-D Accelerator Info** from Terrain Navigator Pro's Help menu. This window gives details on your video card's software and/or hardware drivers, and it also tells you which driver your video card is currently using.

If your 3-D accelerator information window says "Hardware driver found, but not functioning," this means that although the driver is classified as a hardware driver, it does not have the capabilities necessary to provide hardware acceleration in Terrain Navigator Pro's 3-D view. An updated driver may correct this problem.

3-D view is greatly improved by hardware acceleration. In order to try using hardware acceleration, you may need to update your video card's drivers.

Aerial Photos

Aerial Photos and Annual Subscription



As a registered Terrain Navigator Pro customer, you have one year of unlimited access to aerial photo coverage for all areas where you have topographic map coverage. By continuing your annual subscription you'll have access to the newest as well as historical aerial photos. These aerial photos, or *orthophotomaps*, are produced by the USDA, USGS, or various other government-sponsored agencies from fly-over photographs. Most are presented at 1:12,000 scale, but scales as large as 1:3,600 are available in some areas.

Your layers—measurements, annotations, etc.—will appear on the aerial photos just as they appear on the topographic maps. You can continue to add layers while you're working with aerial photos.

Like many topographic maps, alternate editions of photos may also be available. Unlike topographic alternate editions, which primarily consist of shaded relief maps, alternate aerial photo editions can consist of different years, and may include black and white or infra-red imagery. For more information, please see the section on Changing Map Editions (in the Zooming In and Out topic.)

Registration and Subscription

Aerial photos are stored online at servers operated for Terrain Navigator Pro. Access to aerial photos requires an Internet connection from the computer where Terrain Navigator Pro is installed. Registered Terrain Navigator Pro customers have unlimited access to photos covering the states purchased. You may view aerial photos over the Internet, or copy them to your hard drive.

When Terrain Navigator Pro is installed, registration usually takes place automatically. If the registration is denied during the installation process, a warning will appear. Please call us at 800-627-7236, Monday-Friday, 9am to 5pm, MountainTime if your registration did not take place. You may also need to contact us when installing Terrain Navigator Pro on a second computer (as provided for in the license agreement) or when moving the installation from one PC to another.

There are many benefits to the annual subscription:

- **Aerial Photos:**
Because it is not practicable to distribute aerial photos on DVD, aerial photos are downloaded automatically from our servers when needed. With the exception of Alaska and parts of Nevada, the entire U.S. is available in a 1:12,000 color photo that was taken within the last 2-3 years. Other photo scales (as large as 1:3,600) are available in select urban areas but may not be as current.
- **Current Street Map Overlay:**
Upon renewal, you will automatically receive a new Installer DVD containing the latest street overlay. Simply install it and your streets and address lookup will contain the latest changes, updates, and corrections.
- **Alternate Edition Photos and Maps:**
Every 1:12,000 aerial photo and 1:24,000 contains one or more alternate edition. For topographic

maps these consist of shaded relief maps whereas alternate editions of aerial photo consist of different years, and may include black and white or infra-red imagery. We intend to expand and improve the quality and quantity of these alternate editions each year.

- **Map and Photo Updates:**
We check with the various mapping agencies to ensure that the most current maps and photos available are included in Terrain Navigator Pro. As long as your subscription is active you are entitled to these updates as they become available. To check for updates, open the **File** menu and choose **Map and Aerial Photo Updates via Web**.
- **Mobile App Synchronization:**
Connectivity between the Terrain Navigator Pro Mobile App and the desktop software is accomplished through cloud synchronization over the Internet. Your subscription keeps this connection in tact.
- **Team Tracking:**
Those with the Enterprise Edition licensing (and an active subscription) can track the positions of each User within the organization using Team Tracking.
- **Software Upgrades:**
From time to time, we will release upgrades to the Terrain Navigator Pro software. So long as the subscription remains current, you will receive these upgrades at no charge. For an idea as to what past upgrades have included, check the topic on What's New.
- **Additional Tiers:**
The annual subscription allows you to expand the capabilities of Terrain Navigator Pro through the purchase of additional tiers. Once purchased, these tiers (such as the Parcel/Land Ownership layer) remain available for the duration of the subscription and can be renewed when the subscription expires.
- **Other Updates:**
Sometimes available by logging into your Registration Account at <http://www.terrainnavigator.com>, other updates may include newer NGS Benchmark Data Sheets, street layers, and Web Links. Additional state-specific updates may also be available.
- **Telephone Support:**
We are generally available Monday-Friday, 9am to 5pm, MountainTime at 800-627-7236 to assist you in making the most of Terrain Navigator Pro. Those without an active subscription may still receive assistance through email (tnp@mytopo.com) or via the online discussion forum at <http://tnp.uservoice.com/knowledgebase/>.

Your initial Terrain Navigator Pro purchase entitles you to one year of access to aerial photos for the region(s) you own, as well as all of these benefits. (Tiers are sold separately.) After the first year, you may extend your subscription if you wish; log into your web account or call 800-627-7236 for details. Should you choose to let your subscription lapse, only photos (and alternate map/photo editions) that have been copied to the hard drive will remain available, connectivity to the Terrain Navigator Pro Mobile App will be lost, no further software or map updates will be obtained, and telephone support will be discontinued.

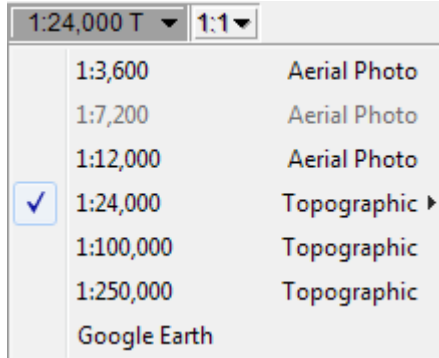
Viewing Aerial Photos

You will need to be connected to the Internet (unless the photos have been copied to the hard drive.) If you are not already connected, Terrain Navigator Pro will prompt you to connect via your usual connection procedure. To select an aerial photo:

- Open a topographic map of the area you wish to view photo coverage for, then from the scale drop-down menu on the toolbar, select a scale ending in "A,"
-or-

- In the Open Map window, set the Map Type to 1:12,000 (or to a larger scale, if available), then select a square from the grid on the state overview,
-or-
- In the **View** menu, select **Map Type**, and specify a scale ending in "A."

Switching Between Topographic Maps and Photos



Use the map type drop-down list on Terrain Navigator Pro's toolbar to switch between maps and photos. A "T" after the scale indicates a topographic map, while an "A" indicates an aerial photo. Other map types may also be available.

Point at Center of Screen Remains the Same

When you first open aerial photo coverage, the photos are displayed at 1:1 zoom level. Since the scale of the photos is more detailed than the topographic maps, you may find that you're viewing less area when you first switch to a photo. It may help you "keep your bearings" to remember that the point at the center of the screen is still the same.

Finding Out When an Aerial Photo Was Taken



Select the information tool from the toolbar, then click anywhere on an aerial photo to get technical details, including the approximate date of the flyover when the photograph was taken. The alternate edition selector in the lower left hand corner of the map window will also indicate the year of the aerial photo being viewed.

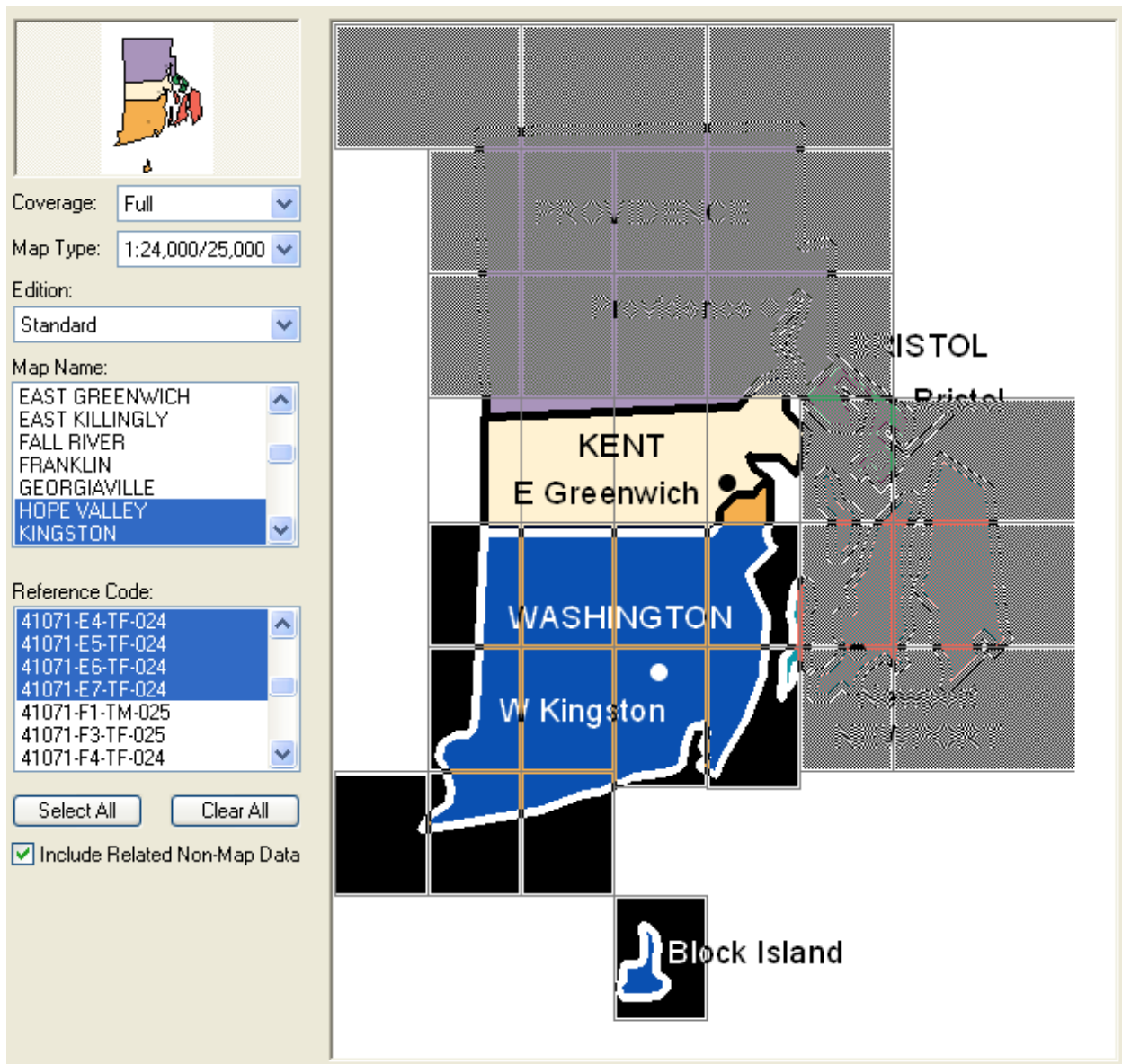
Downloading Aerial Photos to the Hard Drive

Just like topographic maps, aerial photos may be copied to your hard drive, by opening the **File** menu and choosing **Map/Photo Management**, for your state. This will allow access to the photos if you no longer have Internet access - or if you choose not to renew your annual aerial photo subscription.

Map/Photo Management: Copying Maps and Photos to the Hard Drive

Terrain Navigator Pro allows you to copy maps to your hard drive. This can take two separate (but related) forms. First, this allows you to store the maps/photos for your state so that the DVD discs are not required for use. The second option allows you to "share" maps across state boundaries to provide a seamless view of a multi-state area.

Open the **File** menu, choose **Map/Photo Management**, and select **for your state**. This opens a state overview that looks similar to the map selector. Highlight the maps you want to copy and click **OK**. The maps you choose will be copied to your hard drive.



- Start by selecting the **Coverage** area. **Full** coverage will display the whole state. In some cases (like Rhode Island) the grid size will be quite usable. However, in other states (such as Texas or California) the grid and text will be too

small to be usable. In these cases, try the **Uniform Grid** coverage area. Use the scroll bars or the blue box to position the map. Or, hold the CTRL key and pan the map with the mouse.

- Select the desired **Map Type**. Different scales of topographic maps and aerial photos will be available.
- Choose the map **Edition**. Standard and Alternate editions are available for most popular map types.
- Maps can be selected by clicking on their grid position, or by clicking in the **Map Name** or **Reference Code** list. Use down the **Shift** or **CTRL** key on your keyboard to highlight multiple maps in the Map Name or Reference Code lists. Maps to be copied will appear highlighted in a complementary color in the map grid, and selected in the Map Name/Reference Code list. In the above example, the southwest portion of Rhode Island has been selected to be copied to the hard drive when OK is pressed. (The color of a selected map in the grid varies as necessary so that it is easy to distinguish against the multi-colored background, where each county is shown in a different hue.)
- Maps already copied to your hard drive will be shaded in grey in the map selector. In the above example, northern and eastern Rhode Island has been previously copied. (Note: Maps already copied will not appear selected in the Map Name or Reference Code lists - only maps that will be copied when OK is pressed will appear selected in those lists.)
- Click **Clear All** to clear your map list and start over. Note that this will also DELETE any maps already copied to the hard drive!
- Click **Select All** to copy all maps (of the current map type) on the discs (or from the Internet) to your hard drive. Previously copied maps will not be re-copied.
- Press **OK** to copy the selected maps to the Hard Drive. In the above example, the maps in the southwest corner of Rhode Island will be copied to the hard drive. These will be added to the ones in the north and east, which were previously copied. Maps in Kent county will not be copied to the hard drive - but will remain accessible from the Professional USGS Topographic Series disc for New England (or from the Internet.)

Include Related Non-Map Data:

Check here, and in addition to the map image, Terrain Navigator Pro will also copy elevation and NGS (National Geodetic Survey) data. This is necessary for storage of all databases required to fully use Terrain Navigator Pro; otherwise some features may be limited when the CD/DVD is not in use. (For example, when the elevation data is not present, the 3D view will be disabled.) Copying related non-map data is usually done automatically during the initial configuration process for the state - so it is not normally necessary to check this box.

Copying (Downloading) Aerial Photos

To copy aerial photos (via download from the Internet), set **Map Type** to "1:12,000" (or to a larger scale, if available). This will display the photo grid, where you can select which photos to copy. Note that an Internet connection and active maintenance subscription are both required to download aerial photos to the local machine. Because of the massive amounts of data, it may take several minutes to copy each photo from our servers. (For most high-speed connections, this will approximate up to 10 minutes per standard edition aerial photo.)

Copying (Downloading) Alternate Editions of Maps and Photos

To copy an alternate edition of a map or aerial photo (via download from the Internet), set the **Edition** to the desired edition. For example, different years of an aerial photo may be available, or maybe a shaded relief edition of a USGS topographic map. Note that an Internet connection and active maintenance subscription are both required to download aerial photos to the local machine. Because of the massive

amounts of data, it may take several minutes to copy each map from our servers. (For most high-speed connections, this will approximate up to 15 minutes per alternate edition map/aerial photo.)

Note: The grid representing alternate editions of aerial photos and topographic maps may not be a true indication of the availability of a particular alternate edition. For example, aerial photos from 2008, 2009, and 2010 may be shown in the Edition list. This indicates that there are photos in the vicinity for each of those years. However, they may be available for only a portion of the state. In a common example, 2008 may be available along a state's northern border, 2010 may be available along the state's southern border, and 2009 may be available throughout the entire state.

If you select grid for an alternate edition that is not actually available, Terrain Navigator Pro will download the Standard Edition of the map/photo instead (if it has not been downloaded already.) This guarantees that at least one edition is available off-line, even if it is not the desired one.

Deleting Maps and Photos from Your Hard Drive

Maps and photos that are already present on your hard drive are shaded gray. To delete a map or photo from your hard drive, click on the gray grid square. The square will turn transparent.

Click **OK** to start the copying/deleting process. You can copy maps to, and delete maps from, your hard drive in a single step. Depending on how much data you're copying, this process may take several minutes. When the process is complete, a message will appear on the screen, noting how many maps were copied or deleted. (Example: "Copied 8 maps to the hard drive. Deleted 3 maps from the hard drive.")

Maps from Bordering States: Copy Maps Across State Boundary

If you copy maps from bordering states using **File, Map/Photo Management, Across State Boundary**, the maps will appear in the map selector window for the bordering state. This gives you access to the maps without requiring that you switch to the state that originally contained that map.

Mouse Shortcut Also Available

For a quick and easy way to copy the map (or photo) shown on your screen to your hard drive (regardless of the edition, type, scale, etc.) **right click** on the map and choose **Copy this Map to Hard Drive**.

Copying Topographic Maps Without the Professional USGS Topographic Series Disc

In the event you are without the Professional USGS Topographic Series disc for your state, you can copy the maps it contains from the Internet. Open the **File** menu and choose **Preferences, Internet Access and Map Cache**. There, enable the option to **Retrieve topographic maps from the Internet (when not copied to the hard drive.)** Return to **File, Map/Photo Management, Across State Boundary**, and select the maps you need.

Note that an Internet connection and active maintenance subscription are both required to download USGS topographic maps to the local machine. Because of the massive amounts of data, it may take several minutes to copy each map from our servers. (For most high-speed connections, this will approximate up to 10 minutes per USGS topographic map.)

Updating Maps and Photos via the Internet



Terrain Navigator Pro lets you check for updated topographic maps and aerial photos via the internet, and download any new versions available. To check the servers that power Terrain Navigator Pro, open the **File** menu and choose **Map and Aerial Photo Updates via Web**.

You have two options for checking for updated maps/photos:

- **Update all maps/photos on hard drive:** Terrain Navigator Pro will check for available updates for all the topographic maps and aerial photos copied onto your hard drive. Any new versions detected will be downloaded.
- **Update only maps/photos contained in current state:** Terrain Navigator Pro will only compare dates for the topographic maps and aerial photos from the state you are presently working with. This option can save time if you're only interested in a particular area of coverage.

Note that this option does not check for updates to the main Terrain Navigator Pro application. To do this, refer to the **Internet and Map Cache Preferences**.


Using Google Earth™ with Terrain Navigator Pro

What is Google Earth™?

Google Earth™ is a virtual globe program that displays satellite imagery and aerial photography. Terrain Navigator Pro lets you view Google Earth in single-map mode or in split-screen mode with Terrain Navigator Pro's maps. The options on how you wish to configure your connection between Terrain Navigator Pro and Google Earth can be found in the **Preferences for Google Earth**.

In order to use Google Earth with Terrain Navigator Pro, you first need to download it from the Internet. Go to <http://earth.google.com/> for more information.

Once you have Google Earth installed on your computer, Google Earth will be available as a Map Type throughout Terrain Navigator Pro - simply select Google Earth instead of a 1:24,000 topographic map or 1:12,000 aerial photo. This includes the Open Map window, the map type list on the toolbar, the various windows under the **Find** menu, and whenever two map windows are open. (Note that this feature requires *Run Google Earth as an embedded map window* to be selected in the Preferences for Google Earth)

 You can see the Google Earth imagery side-by-side with a USGS topographic map: open the **Window** menu and select **Sync with Google Earth**; or, click the Synch with Aerial Imagery (Earth button) on the toolbar to lock Google Earth with the map you are currently viewing. (Note: *Google Earth* must be selected as the type to split with in the Preferences for Google Earth.)

Important Notes:

- You will need access to the Internet to view Google Earth.
- If you have Google Earth Plus™ or Google Earth Pro™ installed, you will need to enable it for automatic login before running it in the Terrain Navigator Pro window. Open Google Earth. In the Login window, enter your Username, check the **Enable automatic login** box and click **Login**.
- In order for Google Earth to run properly in split-screen mode, some adjustments must be made:
 1. Make sure Google's "Start up tips" are not enabled. In the Google Earth™ window, open the **Tools** menu, choose **Options** and click the **General** tab. Make sure the **Show start up tips** box is not checked.
 2. Make sure Google's Toolbar and Sidebar are both turned off. Under the Google Earth™ **View** menu, make sure the **Toolbar** and **Sidebar** items are not checked. If they are, select them to remove them from view.
 3. Make sure Google's "Internal Browser" is not enabled. In the Google Earth™ window, open the **Tools** menu, choose **Options** and click the **General** tab. Make sure the **Show web results in external browser** box is checked.
- Certain security applications, such as *CA Internet Security*, include an option that prevents programs from opening other programs. This option must not be turned on, otherwise Terrain Navigator Pro will not be able to launch the Google Earth window view.
- Google reserves the right to modify, refine, and enhance their application. It is possible that these changes will cause the link between Google Earth and Terrain Navigator Pro to no longer function properly. If this should occur, MyTopo will attempt to correct this incompatibility in the next release of Terrain Navigator Pro. However, if the scope and/or nature of this repair is extensive, this "fix" may not be possible - or will be included in the next paid upgrade.

Terrain Navigator Pro

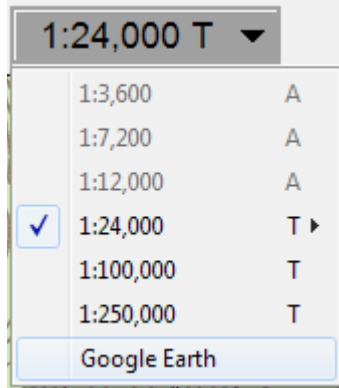
Google Earth™ is a registered trademark of Google, inc.

Viewing Google Earth™ Imagery

Embedded vs. Separate Application

In the Google Earth Preferences, you can specify if you want the Google Earth imagery to appear within a Terrain Navigator Pro window, or if you simply want to link control of Google Earth as a separate, stand-alone application. Generally speaking, if you favor Terrain Navigator Pro's controls, and wish to see the corresponding area using Google Earth's imagery, we recommend using the default choice, *Run Google Earth as an embedded map window*. However, if you are looking to use Google Earth as your primary mapping tool, choose *Run Google Earth as a separate application window*.

Single-Window Mode (Embedded)




To view Google Earth imagery in Terrain Navigator Pro's window, set the Google Earth Preferences to *Run Google Earth as an embedded map window*. Then, Google Earth will appear as a Map Type in the Open Map window, the Tool Bar as a Map Type (as illustrated here) as well as in the **View** menu under **Map Type**, and in any **Find** window where *Map Type* is a choice. Use any of these to open Google Earth at the desired location. The current map (or aerial photo) will be replaced with an embedded instance of the Google Earth application.

Note that most of Terrain Navigator Pro's tools are not available, as Google Earth is a separate application with different capabilities.


Two-Window Mode (Embedded)


You can view Google Earth imagery in two-window mode and synchronize it with whatever map or photo you are already viewing. This enables you to compare the USGS topographic maps (or aerial photos) included with Terrain Navigator Pro along side the imagery available in Google Earth. Moreover, markers, routes, and tracks can be sent from the Terrain Navigator Pro map to the to Google Earth window.

There are several ways to open Google Earth in Two-Window (Embedded) mode:

- Open a topographic map or aerial photo in Terrain Navigator Pro. Then, click the Sync with Google Earth button  on the tool bar.
- Open a topographic map or aerial photo in Terrain Navigator Pro. Then, open the **Window** menu and choose **Sync with Google Earth**.

In these cases, Google Earth™ will open an image of the exact location you are already viewing in


Terrain Navigator Pro within a second window. Use the drag tool  in either window to pan both images at the same time. If you wish to pan them independently, turn off the **Two-Window Mode**,

Locked button  on the Compass Control Bar, or open the **Window** menu and deselect **Two-Window Locked Mode**.

Alternatively, you can open Google Earth in a different location altogether. To do so:

- Open a topographic map or aerial photo in Terrain Navigator Pro. Then, in any **Find** window (under the Find menu) select **Google Earth** as the *Map Type* and press **Open Another**.

In this case, Google Earth™ will open an image of the location you are attempted to Find in a second

window. Using the drag tool  in either window will pan each image independently. If you wish to synchronize them to a common location, turn on the **Two-Window Mode**, **Locked** button




on the Compass Control Bar, or open the **Window** menu and select **Two-Window Locked Mode**.


See the topic on Two-Window Mode for more information on viewing two maps side by side simultaneously.

Synchronized as a Separate Application

If *Run Google Earth as a separate application window* is selected in the Google Earth Preferences there are several restrictions that limit the interoperability between Terrain Navigator Pro and Google Earth. In this case, Google Earth will **not** be available as a map type. Instead it is accessed in one of two ways:

- Open a topographic map or aerial photo in Terrain Navigator Pro. Then, click the Sync with Google Earth button  on the tool bar.
- Open a topographic map or aerial photo in Terrain Navigator Pro. Then, open the **Window** menu and choose **Sync with Google Earth**.

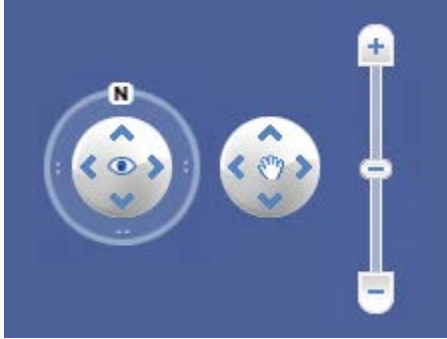
In this case, Google Earth will run along side Terrain Navigator Pro, but within its own application window.

Use the drag tool  in either window to pan both applications at the same time. They can not be panned independently when synchronized as a separate application. If this is the desired effect, close either Terrain Navigator Pro or Google Earth completely.

Google Earth™ is a registered trademark of Google, inc.

Navigation Controls

The Google™ image can only be manipulated by using Google's™ navigation controls. (Terrain Navigator Pro's tools do not work in the Google Earth™ window.) To use the Google Earth™ navigation controls, move the cursor to the upper right corner of the screen.



See the documentation that accompanies Google Earth™ for a complete description on how to best use these controls.

Note: The Google Earth™ Navigation Controls are determined by the Google Earth™ application, and not Terrain Navigator Pro. Therefore, as Google continues to revise and improve Google Earth™, these controls and their behavior may differ in appearance and operation than what is presented here.

Google Earth™: Adding Markers, Routes and Tracks

You can add layers to Terrain Navigator Pro's maps and photos and view them on the Google Earth image. All layers (markers, routes and tracks) must be created on Terrain Navigator Pro maps and photos before they can be viewed on Google Earth imagery. You can not use Terrain Navigator Pro's tools in the Google Earth window.

These options are available regardless if Google Earth is set to run as an embedded map window, or as a separate application. (see the section Google Earth Preferences for more details.)

To send a new marker, route, or track to Google Earth, simply create the marker, route, or track on the Terrain Navigator Pro topographic map, or aerial photo. If Terrain Navigator Pro is set up for automatic transfer of layers (see the section Google Earth Preferences) the layer will automatically appear on the Google Earth image once it is created. If not, it needs to be sent to Google Earth manually: right-click the layer and select **Send to Google Earth**.

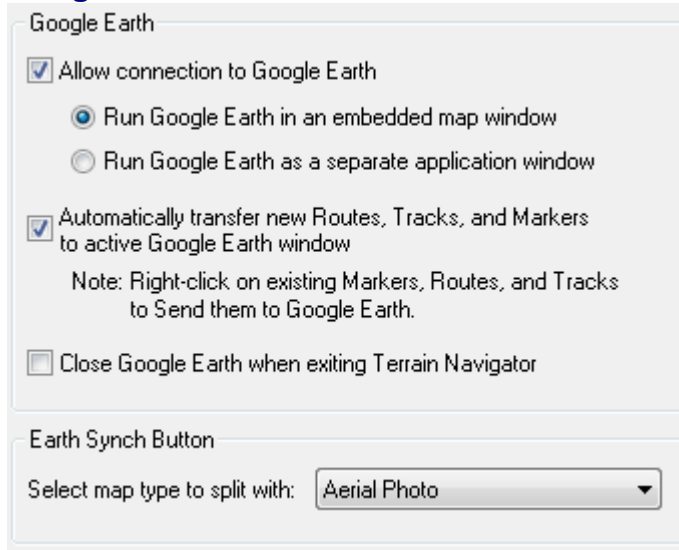


To edit any individual layer in Terrain Navigator Pro, right-click the layer and select **Edit**. If you want to edit a layer in Google Earth, refer to Google's online Help pages for more information.

Existing markers, routes, and tracks can be manually transferred to Google Earth. Right-click on the desired marker, route, or track and select **Send to Google Earth**.

Google Earth™ is a registered trademark of Google, inc.

Google Earth™ Preferences



Open the **File** menu and choose **Preferences, Google Earth** to adjust how Google Earth (and the *Earth Button*) works with Terrain Navigator Pro.

Allow Connection to Google Earth

Uncheck this box to disable the use of Google Earth in Terrain Navigator Pro. If the box is checked you have two options:

- **Run Google Earth as an embedded map window:**

Check here and Google Earth will run within the Terrain Navigator Pro window. Google Earth will appear as a Map Type wherever a map type choice is available. This includes the Open

Map window, the map type list on the toolbar, the various windows under the **Find** menu, and whenever two map windows are open. In addition, the Sync with Google Earth button is available on the toolbar and in the Window menu. This will open Google Earth in a second map window, but within the Terrain Navigator Pro interface. Because the Google Earth map is embedded within the Terrain Navigator Pro interface, the menus, features, and controls unique to Google Earth will not be available.

- **Run Google Earth as a separate application window:**

Choose this option to open Google Earth in its own window as a separate application. This is handy if you want easy access to all of Google Earth's tools and layer options. However, unlike when Google Earth is run as an embedded map window, Google Earth will not appear in the various map type lists, nor can it be used in two window mode. Press the **Sync with Google Earth** button on the toolbar (or choose it from in the **Window** menu) to start Google Earth. Terrain Navigator Pro will reposition itself alongside the Google Earth application window.

Once Google Earth is connected to Terrain Navigator Pro in either two window mode or as a separate application window, dragging the map in one window will automatically change the other. If Google Earth is running as an embedded window, this feature can be disabled by opening the **Window** menu and de-selecting **Two-Window Locked Mode**, or by pressing the Two Window Mode, Locked button on the Compass Control Bar.

Automatically Transfer New Routes, Tracks, and Markers to Active Google Earth Window

Checking this option will automatically transfer the routes, tracks and markers you create on your Terrain Navigator Pro maps into Google Earth images as they are created. Note that this option only affects newly created routes, tracks and markers - existing layers can not automatically be transferred to Google Earth.

If this option is unchecked, transfer of routes, tracks and markers can be accomplished by right-clicking the object and choosing **Send to Google Earth**. This same method can be used to transfer exiting routes, tracks and markers.

Close Google Earth when Exiting Terrain Navigator


Check this option for Google Earth to close when Terrain Navigator Pro is shut down. Otherwise, Google Earth will remain open and can be accessed through the Windows Taskbar. This is useful if you want to

further refine your layers using the tools available in Google Earth, and save them in your list of places, etc.

Important:

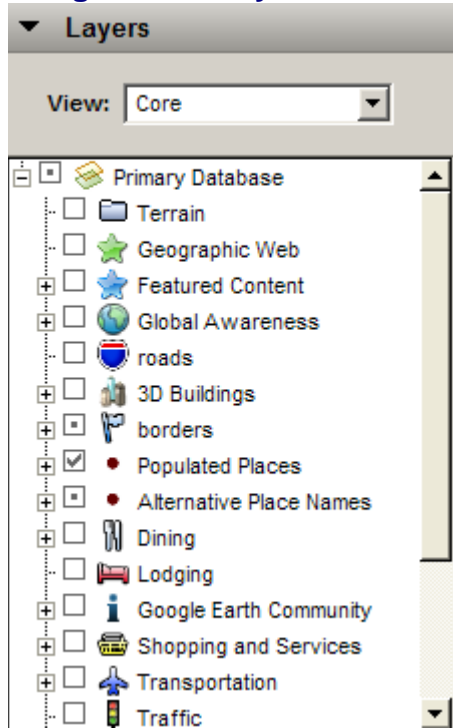
Google™ reserves the right to modify, refine, and enhance their application. It is possible that these changes will cause the link between Google Earth™ and Terrain Navigator Pro to no longer function properly. If this should occur, MyTopo will attempt to correct this incompatibility in the next release of Terrain Navigator Pro. However, if the scope and/or nature of this repair is extensive, this "fix" may not be possible - or will be included through a paid upgrade.

Earth Synch Button

 Terrain Navigator Pro provides a shortcut to split the map window, so to open a second map of a different map type and/or scale, and view it side by side. This is especially useful with Google Earth (or other aerial imagery) and an USGS topographic map. Select the type of map you would like to use most often as the *type to split with*. Then, whenever the Synch with Aerial Imagery (Earth) button is pressed on the toolbar, Terrain Navigator Pro will open a second map window. Panning one map will automatically move the other. For more details, please see the topic on Working with Two Map Windows.

Google Earth™ is a registered trademark of Google, inc.

Google Earth Layer Preferences



Google Earth™ provides a variety of data points of geographic interest that can be selected to display over the viewing area. This includes points of interest (POIs) as well as map, road, terrain, and even building data. To add or remove layers from the Google Earth™ imagery, you must change the preferences in the Google Earth™ window.

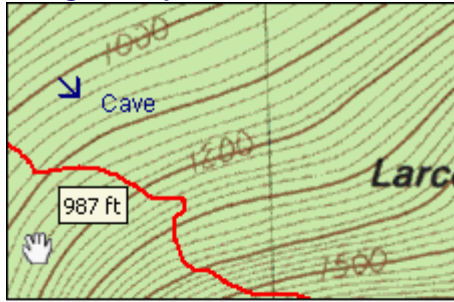
To view the Google Earth™ window, open it as a separate application (double click the Google Earth™ icon on your desktop.) The full list of layers is available in the Layers panel in the bottom left corner of the Google Earth™ window.

Check the box next to each layer you would like to show in the Google Earth™ window. For an explanation of each layer type, consult, Google Earth's™ online help manual; in the Google Earth™ window, click **Help > User Guide > Using Layers**.

Note: The Google Earth™ layers are determined by the Google Earth™ application, and not Terrain Navigator Pro. Therefore, as Google continues to revise and improve Google Earth™, these layers and their availability may differ in appearance and operation than what is presented here.

GeoTips

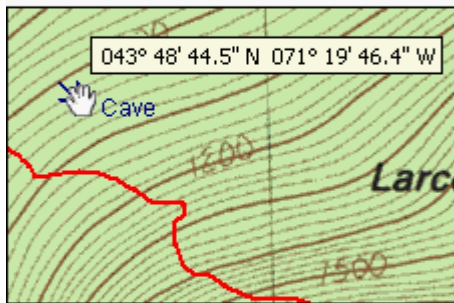
Using GeoTips



Cursor over map—GeoTip shows elevation

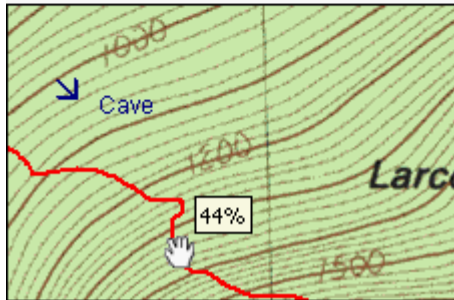
GeoTips are small, temporary labels that automatically pop up when the cursor is held over a particular item. You can customize your GeoTips to show specific kinds of information, depending on where you place the cursor.

For example, when the cursor is held over a marker, a GeoTip can show the coordinates of that location. Moving the cursor over a track line, you can find the grade at that particular point in the track. Over a route leg, a GeoTip can display the bearing or distance to the next waypoint. Resting the cursor on the map image, a GeoTip can display the coordinates and elevation at that point.



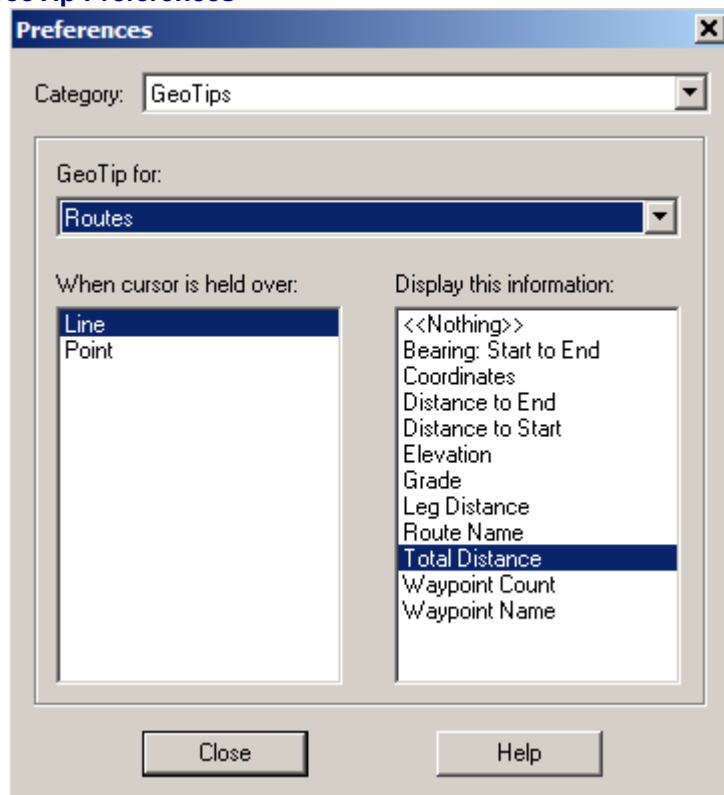
Cursor over marker—GeoTip shows latitude

To configure your GeoTips, open the **File** menu and click **Preferences, GeoTips**.



Cursor over track—GeoTip shows grade

GeoTip Preferences



GeoTips are small, temporary labels that automatically pop up when you hold your cursor over a particular item. You can customize your GeoTips to show specific kinds of information, depending on where you place your cursor. To configure your GeoTips, click **File > Preferences > GeoTips**.

GeoTip for: Select the layer or item whose GeoTip you wish to modify.

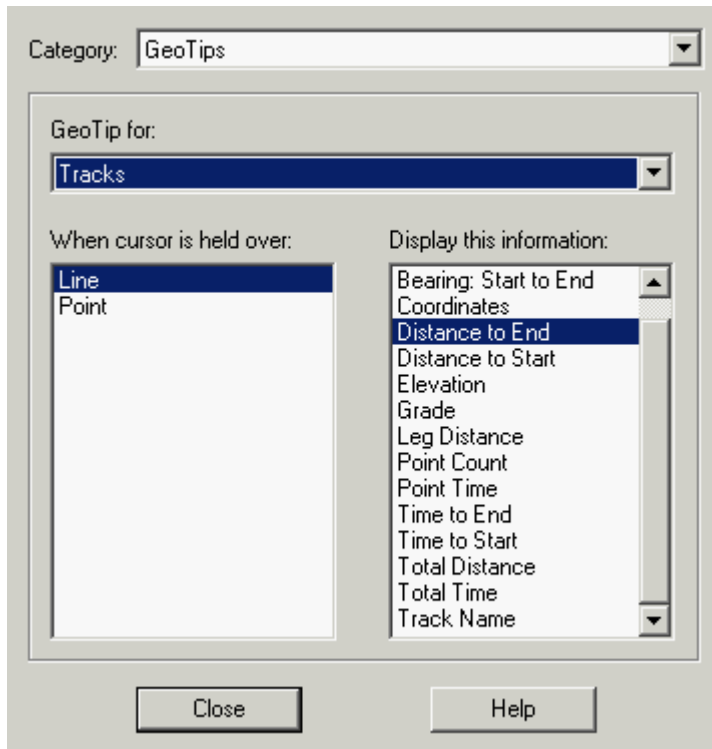
When cursor is held over: If the layer is made up of more than one part—for example, routes are made up of lines and waypoints—set GeoTips to show different information when the cursor is held over different parts of the layer.

Display this information: Select a value to appear when you hold the cursor over the item highlighted under "When cursor is held over". Values will change depending on the layer you have specified.

GeoTips for Tracks

Terrain Navigator Pro's GeoTip feature lets you hover the cursor over a track to get specialized details.

Click **File > Preferences > GeoTips** (or click the Preferences button and select **GeoTips** from the drop down menu at the top of the Preferences window). Under "GeoTip for," select **Tracks**.



You can set Terrain Navigator Pro to display data when you hover the cursor over the track **line**, or over a specific track **point**. Select either item from the menu at left, then choose the information you want to view on the right.

Note: The time-related data items (point time, time to end, total time, etc.) are designed for use with tracks that were recorded with a GPS unit. When used with GPS tracks, GeoTips can provide useful data about the journey that was recorded. Tracks drawn by hand on the map contain no time data.

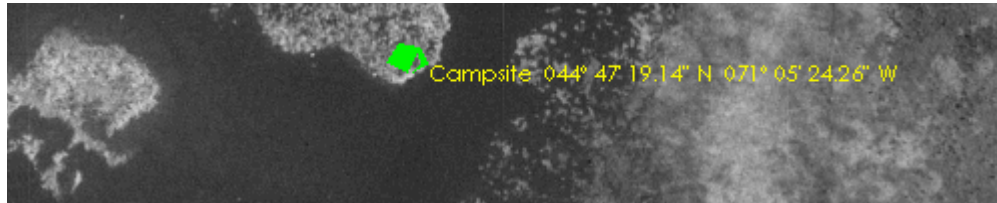
Markers

Markers



The marker tool lets you place labeled symbols, or *markers*, on the maps to indicate points of interest.

Creating Markers



Select the Marker tool from the toolbar, then click the map. A symbol will be placed at the point you clicked. If you want to move the marker, hold the cursor over the marker until the cursor changes to a combination hand/marker symbol, then drag the marker to a new location. Once you're done creating and moving your marker(s), switch back to the Drag tool.

Terrain Navigator Pro automatically assigns a default name, symbol and color for the marker. To rename your marker, change its color, or select a different symbol, right-click the marker and choose **Edit**. This will open the Marker Edit window, which lists all your markers and lets you edit each one individually.

Adding AutoText to a Marker Name

In the marker edit window, you can also select specific information to include on the same line as the marker's name. This information is called AutoText.



Saving Comments about a Marker

Right-click a marker and choose **Edit**. The marker edit window provides information about your marker, and includes a space for you to type comments about this location (approximately 190 characters maximum).

Downloading Markers from a GPS

When you transfer waypoints from your GPS unit into Terrain Navigator Pro, they are displayed as markers, and are automatically added to your marker list. Any comments you may have recorded will be transferred along with the marker. The marker will be given Terrain Navigator Pro's default marker symbol and color.

Moving Markers

You can move a marker by clicking and dragging it. First, select the marker tool. Hold the cursor () over the marker until the cursor changes to a combination hand/marker symbol (). Click and drag the marker to a new location.

Another way to move a marker is to assign it new coordinates in the Edit Markers window.

Getting Information about a Marker

To quickly find a marker's coordinates, full and GPS Name, and read any comments without changing anything, right-click on the marker and choose **Information**. The data from the Marker Information window may also be printed when printing a map.

Editing Markers on Other Maps

You already know you can edit individual markers by right-clicking on them. The Marker Edit window also lets you modify markers that aren't included on the map that you're viewing. Click **Layers > Markers** to see a list of all your markers, and simply highlight any marker to edit its characteristics.

Hiding a Marker from View

To temporarily remove a marker from the map, right-click it and choose **Hide**. To restore it to view, click View > Layer Visibility. Or, you can use the Toggle Layers button to toggle all layers on and off at once. (Markers, like routes and tracks, are map layers.)

Deleting a Marker

To delete a marker, right-click the marker and choose **Delete**. If the marker isn't in view on the screen, you can also just click **Layers > Markers**, highlight the name of the marker you want to delete, and click the **Delete** button provided there in the Marker Edit window. Make a mistake? Open the tools menu and select **Undo**!

Deleting ALL Markers at Once

Terrain Navigator Pro provides the ability to delete all your markers (and other layer types) in a single step. *IMPORTANT: Once your markers are deleted, they cannot be retrieved.* Therefore, as a safeguard, the Delete All option must first be activated in General Preferences.

GPS Names

Terrain Navigator Pro automatically assigns markers GPS Names, for use with GPS units. The GPS Name is what will appear on your GPS screen if you transfer a marker to your GPS unit. Since GPS units use a limited number of characters for naming locations, the GPS Names that Terrain Navigator Pro generates are no more than six characters long. In addition, these default names are guaranteed to be unique, so that no two markers share the same GPS Name. This prevents any confusion when using markers with your GPS in the field. Keep this in mind if you assign your own GPS Names: make sure all your GPS Names will be easily recognizable when you're out using your GPS in the field - and that no two markers should share the same GPS Name.

Changing the Default Symbol, Color, and Prefix

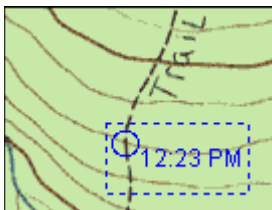
When you first start using Terrain Navigator Pro, the markers that you create are automatically given a blue circle symbol, and are named with the prefix "Mrk" (Mrk1, Mrk2, etc.). These are the default settings, which Terrain Navigator Pro automatically uses for all new markers. Just as you can change individual markers' characteristics, you can also change the default marker settings, under Marker Preferences.

For example, suppose you are using markers to pinpoint potential campsites. Click File > Preferences > Markers and change the prefix from "Mrk" to "Site." You may well find a symbol that you prefer to use instead of the blue circle: more than a hundred other symbols are available. Finally, you can specify a default color, and click **OK** to close the preferences window. All new markers that you create from now on will use the symbol, color and prefix you specified. You can change the default Preferences as often as you like.

Creating a Marker by Typing Coordinates

If you know the precise latitude and longitude of the point you wish to mark, you can create the marker by typing its coordinates. Click **Layers > Markers** and click the **New** button in the edit marker window. This opens the New Marker window, with blanks for you to fill in latitude, longitude (or other Coordinate System), marker name, symbol, etc.

"Current" Marker



Notice that Terrain Navigator Pro places a blue dashed outline border around one marker. This indicates the *current* marker. The current marker will automatically appear highlighted when you open the Edit Markers window. The current marker is the last marker that you modified or clicked on (with the Marker tool).

Resetting Marker Numbering

Each marker you create is automatically assigned a default name, which contains a number. The number increases with each marker you create. To reset the marker numbering to zero, click **File > Preferences > Markers** and click the **Numbering Reset** button.

Caution:

Resetting marker numbering may result in duplicate marker names.

Unless you have renamed every marker you have created, you may have some markers that still bear their default names. This presents the possibility of having two markers with the same name: for example, if you already have a "Mrk1" and you reset the marker index, the next marker you create will also receive the default name "Mrk1." This can cause confusion, especially when using your markers in a GPS unit. *It is important to make sure you can always tell all your markers apart by their GPS Names.*

Importing/Exporting Markers in Text File Format

The Import and Export options on the File menu are designed to let you save, share, and import layer data. If you have a large group of coordinate locations that you wish to mark in Terrain Navigator Pro, you can create a list of these locations in the Marker Text File Format and import them into Terrain Navigator Pro, where they will be displayed as markers on the maps.

Keyboard Shortcuts

- Ctrl+E** Opens Edit Markers window
- Ctrl+F** Next Marker (Forward)
- Ctrl+R** Previous Marker (Reverse)
- Ctrl+A** Place marker at GPS location (during Tracking)
- Ctrl+C** Copy active marker to Clipboard
- Ctrl+V** Paste active marker from Clipboard
- Ctrl+Z** Undo last change (to all Layers)
- Del** Delete Current Marker
- Delete Button (on Toolbar)** Delete Current Marker

New Marker

Name

Full: Beaver lodge

GPS: Bvrlgd

Comment

Near northern edge of pond

Coordinates

Latitude: 044 ° 34 ' 15.04 " N

Longitude: 071 ° 28 ' 48.09 " W

OK Cancel Help

If you know the coordinates of a location you wish to mark, open the Edit Markers window (click **Layers > Markers**), and click the **New** button. You can then type the coordinates and assign a name. just by filling in the blanks.

Name: The full name of this marker.

GPS Name: For GPS use (six characters maximum). This is the name by which this marker will be known if you transfer it to a GPS. Terrain Navigator Pro creates a GPS Name automatically when you type the full Name, but you can change the GPS Name if you wish. Just make sure the GPS Name is descriptive enough so that you will recognize this marker on your GPS screen.

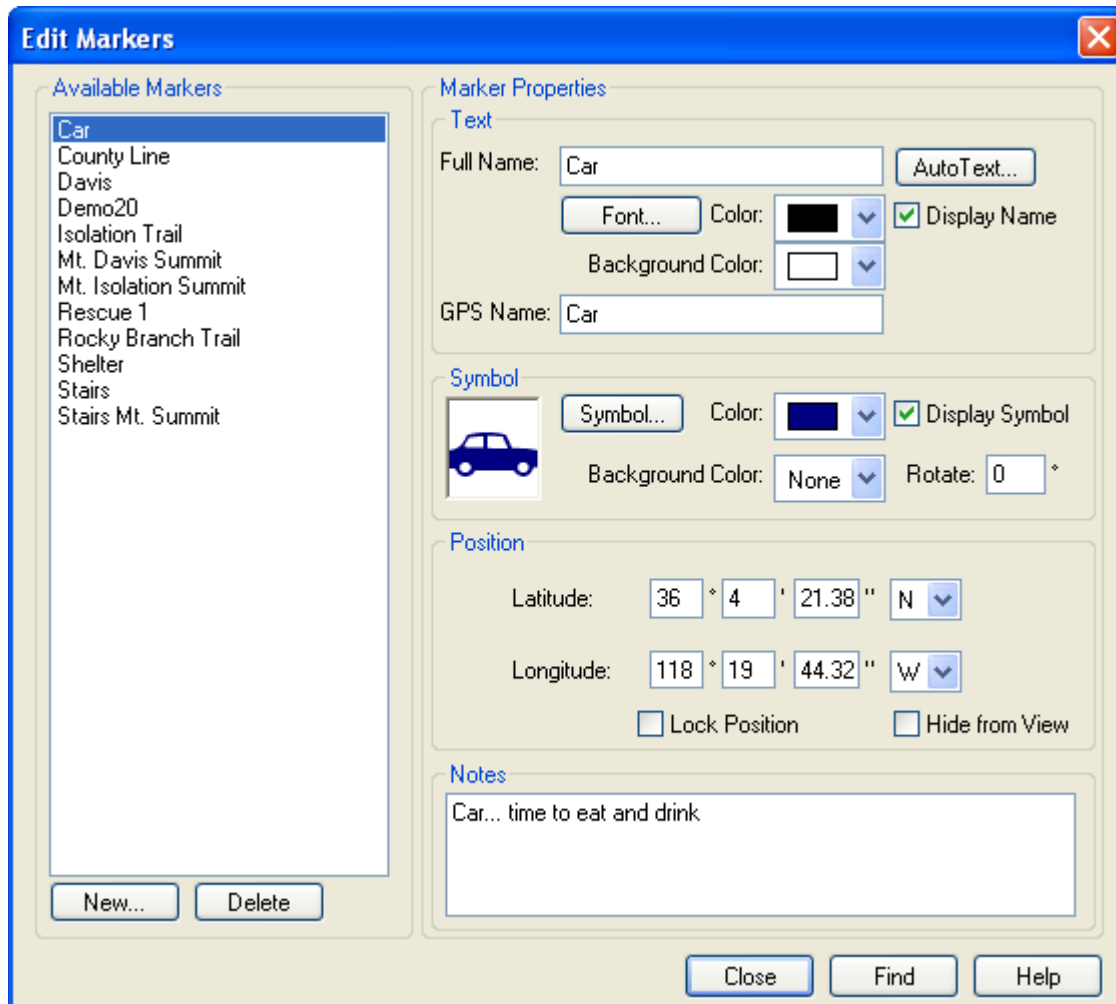
Comments: A space for you to record notes about this location. Your comments will be included if you transfer this marker to a GPS unit (you may want to find out whether your GPS has a length limit for comments).

Coordinates: Type the coordinates of the location where you wish to place this marker. The coordinate system presented here is taken from your settings in General Preferences.

To edit the marker's symbol and/or color, click **OK** to return to the Edit Markers window.

Edit Markers

Click **Layers > Markers** to see a list of all your markers and to edit individual markers' characteristics. Highlight any marker in the list to change its name, symbol, color, etc. You can also open the edit markers window by right-clicking a marker and choosing **Edit**.



Available Markers

Marker List

Select a marker listed here to change its characteristics. Once a marker is selected, its properties will be shown on the right side of the Edit Markers window. Only one marker can be selected at a time for editing.

New Marker

Press **New...** to open the New Marker window and to add the new marker to the list of available markers.

Delete

Click here to delete the selected marker. Hold the **shift** key when clicking this Delete button to delete all Markers (you will be asked to confirm this before proceeding, and asked to set the 'Delete All' preference in General Preferences).

Find

Click the Find button to close this window and open the map view centered on the selected marker's location.

Marker Properties

Full Name

Replace the default name with a name of your own. This name can be displayed on the screen adjacent to the marker. While the position of this text can not be adjusted, you can use the Label Tool to create complex annotations where two or more layers are adjacent to each other.

AutoText

Press **AutoText...** to open the AutoText window and to configure any items you wish to prefix or append to the Marker's full name.

Font

Choose a font style/size, and a color for each marker. If you'd like your marker labels to appear on an opaque background, you may also specify a background color for the marker label.

Display Marker Name

Check this box to show this marker's name on the map. Uncheck this box to hide the marker name from view on the map.

GPS Name

When you send markers to your GPS, they will be listed by their GPS names in your GPS. This allows you to have a short name for easy visibility on GPS receivers, while maintaining a longer name that is displayed within Terrain Navigator Pro.

Symbol, Symbol Color

The General symbol set is selected by default. Choose a symbol for marking this location on the map. 16 colors are available for symbols.


If you have installed the optional Emergency Management SymbolPack and you would like to use the emergency response or fire symbols instead of the General symbols, click the **Symbol** button and select a category from the drop down menu at the top of the window.

If you'd like your marker symbols to appear on an opaque background, you may also specify a background color for the marker symbol.

To rotate the marker's symbol on the map, enter the number of degrees you would like to rotate it in the **Rotate** box.

Ensure the **Display Symbol** box is checked to show your marker symbol on the maps.

Position

The coordinates of this marker's location. You may change these coordinates if you want to move the marker. (You can also move markers by clicking-and-dragging them, when the Marker tool  is selected.)

Lock Position

Check here to lock this marker in place on the map - preventing accidental movement with the Marker tool. (To unlock it, uncheck this box or right-click on the marker itself and choose **Unlock Marker**.)

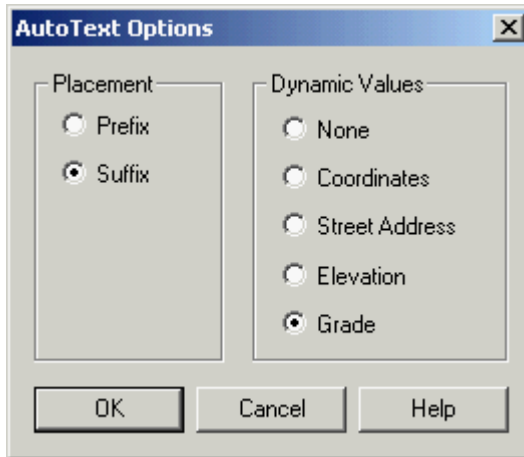
Hide From View

Check here to hide this marker (including both the Marker Name and Symbol) from view on the map. (To view it again, uncheck this box or use the Layer Size/Visibility window.)

Notes

Space is provided to record miscellaneous comments about this location.

Marker AutoText



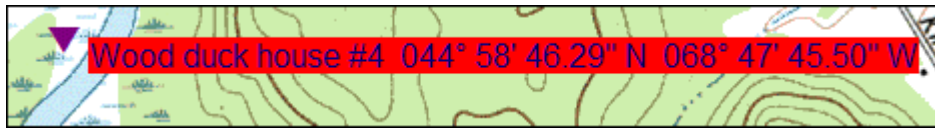
The AutoText feature lets you include location information along with the marker's name on the map. You may choose to include **Coordinates, Street Address, Elevation, or Grade.**

Note: When using AutoText to show elevation, keep in mind that spot elevations in Terrain Navigator Pro are *approximate*.

AutoText Updates Itself Automatically

AutoText is so called because it automatically updates itself whenever necessary. For example, if you attach

AutoText Coordinates to a marker, and then you move the marker, the AutoText figure will change accordingly.



Placement

The AutoText will be included on the same line as the marker's name. Decide whether you want the AutoText to appear before the marker name (as a **Prefix**) or after the name (**Suffix**).

Dynamic Values

Choose **Coordinates, Street Address, Elevation, or Grade.** The information will appear on the map, on the same line as the marker's name.

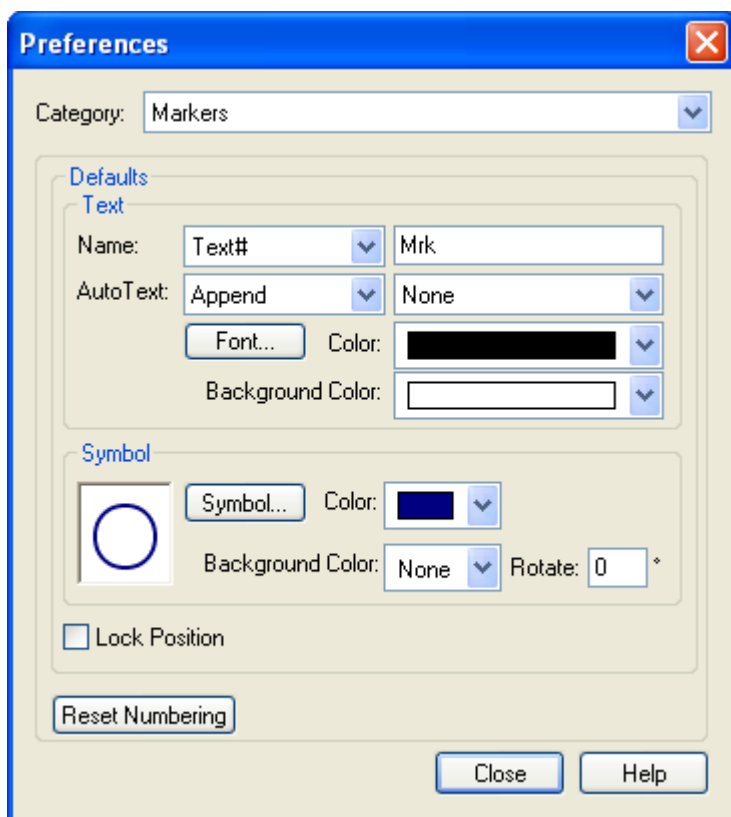
To remove AutoText, choose **None**.

Setting Defaults for AutoText

You can set preferred AutoText for Terrain Navigator Pro to use every time you create a new marker. To specify your preferred settings, click File > Preferences > Markers.

Marker Preferences

Open the **File** menu and choose **Preferences, Markers** to adjust the initial (default) settings that Terrain Navigator Pro will use for any new markers that you create using the Marker Tool.



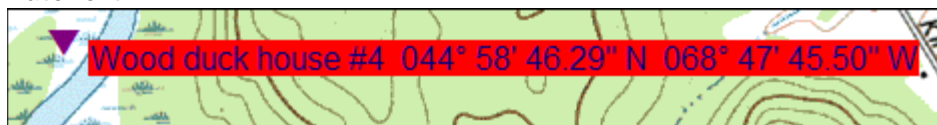
Default Name

The Default Name is what Terrain Navigator Pro will automatically fill in for the starting text of your marker names. You have several choices:

Text: Lets you assign a standard name prefix in the space at right. When you first start using Terrain Navigator Pro, the Default Name is set to Text, with "Mrk" to be used as the prefix for all new markers. You can change this prefix if you like. Each new marker's name will start with the prefix you specify here. (They will be numbered so that you can tell them apart.) This feature is useful for marking multiple instances of the same thing. For example, "Tower," "Site," etc. To include sequential numbering at the end of your marker default name, select **Text #**.

Date, Time: You may choose to automatically start your marker names with either Date or Time. Since Date or Time serves as a prefix, no additional prefix space is available.

AutoText



AutoText is location data that you may include on the map along with your marker names. AutoText is so called because it will automatically update itself if the marker is moved. You may choose **Coordinates**, **Elevation**, **Grade**, or **Street Address**.

To add AutoText *before* the marker's name, choose **Prepend**. To add the AutoText *after* existing marker's name, choose **Append**.

Font

Choose a font style/size, and a color for the Marker's initial text. If you'd like your marker labels to appear on an opaque background, you may also specify an initial background color for the marker label.

Symbol, Symbol Color

The General symbol set is selected by default. Choose a symbol for marking locations on the maps. 16 colors are available for symbols.

If you have installed the optional Emergency Management SymbolPack and you would like to use the emergency response or fire symbols instead of the General symbols, click the **Symbol** button and select a category from the drop down menu at the top of the window.

If you'd like your marker symbols to appear on an opaque background, you may also specify a background color for the marker symbol.

To rotate the marker's symbol on the map, enter the number of degrees you would like to rotate it in the **Rotate** box.

Make sure the **Display Symbol** box is checked to display your markers on the maps.

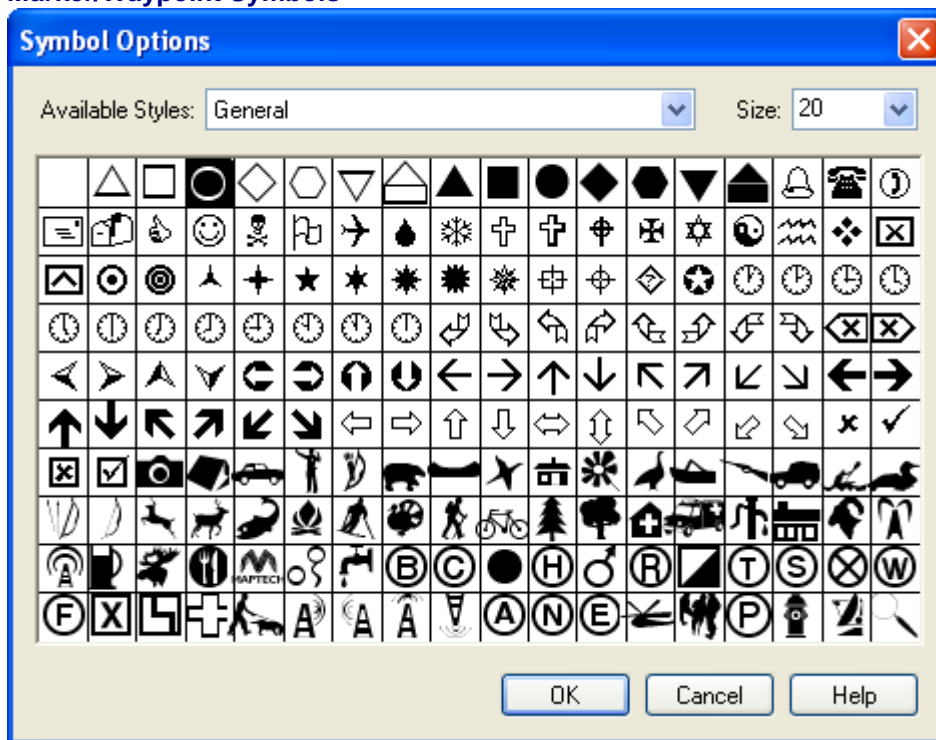
Lock Position

Check here to lock each new marker in place on the map. (To unlock it, right-click on the marker itself and choose **Unlock Marker**.)

Reset Numbering

As mentioned above, your markers are automatically numbered, to ensure that all marker names are unique. This prevents confusion, especially when transferring markers to a GPS. If you like, you can **Reset** the numbering to start again at 1, but keep in mind that this may result in duplicate marker names. For example, if you already have a "Mrk3," and you reset marker numbering, you could end up with two markers named "Mrk3."

Marker/Waypoint Symbols



Several symbols are available for marking locations on the map. The **General** symbol style is selected by default. Additional styles are available in the Emergency Management SymbolPack. Symbol **Size** controls how large the symbols will be: the default size is 20.

Another Available Style is **System Font Symbols**. This allows you to use any character within a *TrueType* or *Outline* font set as a symbol for your Marker or Waypoint. Since there are millions of font sets available for Windows, there are virtually no limits to the ways maps can be annotated with Terrain Navigator Pro.

For additional information on symbol sizing, please see the discussion on Layer Size/Visibility.

Marker Information

To get specific information about a marker and the map that contains it, right-click a marker and choose **Information**.

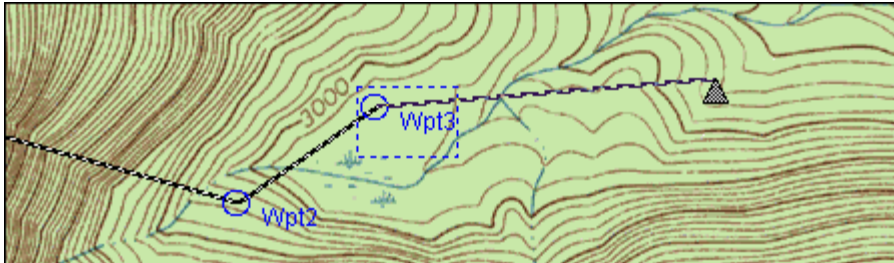
The right side of the window gives you the marker's full **name**, along with its **elevation**, **coordinates**, whether or not the marker is **locked** in place, and any **comments** you may have recorded about this location. You'll also find the marker's **GPS Name**—the name that will be used for this marker if you transfer it to a GPS unit.

CD Name:	New Hampshire (3.0)	Marker Name:	Old cabin site
Map Name:	MT CHOCORUA	GPS Name:	OldCab
USGS Ref. Code:	43071-H3-TF-024	Elevation:	3065 feet
Map Scale:	1:24,000	Latitude:	043° 56' 47.59" N
Map Type:	Topographic (Feet)	Longitude:	071° 19' 42.39" W
Map Projection:	Transverse Mercator	Locked:	Yes
Vertical Datum:	National Geodetic Vertical Datum 1929	Comments:	Roof mostly collapsed, but structure still visible from trail.
Horizontal Datum:	North American Datum 1927		
Contour Interval:	40 feet		
Created:	1995		
Revised/Inspected:	None		

Routes

Routes

A route is a path of travel along a series of defined points. The points along the route are called *waypoints*.



Creating Routes by Hand



To create a route on the map, select the Route tool from the toolbar and click in the locations where you want to set waypoints. Waypoints are represented by symbols, and are automatically assigned names and numbers. As you create waypoints, the waypoints are joined in sequence by a line. Each line segment is called a route *leg*. When you have finished, click the Route toolbar button again or right-click on the map and choose **Finish Route**. This will save your route on the map.

Tip: Hold down the Control key on your keyboard to temporarily switch the cursor back into Drag mode if you need to move the map.

Transferring Routes to/from your GPS



Terrain Navigator Pro's GPS menu lets you send and receive routes from a connected, compatible GPS.

Modifying Your Routes

To make changes to any characteristics of a route, just right-click on any waypoint and choose **Edit Route**. This opens the Edit Routes window. In the edit routes window, you can rename your route, change waypoint symbols and colors, and record comments about the route.



Tip: Be sure to right-click on the route's **Waypoint** when attempting to edit the route. Right-Clicking on the line segment will have no effect.

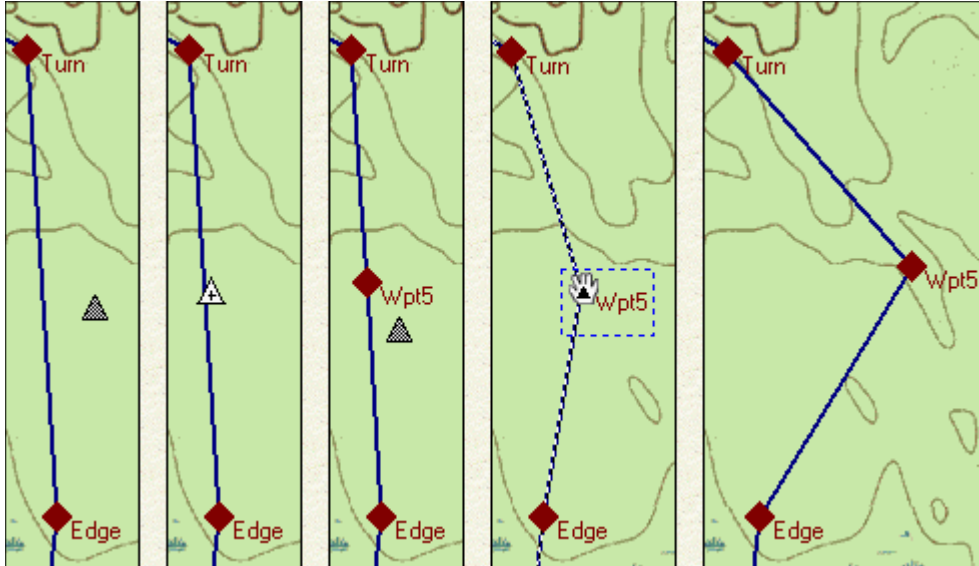
Inserting a Waypoint

First, select the Route tool, then hold the cursor over the route line where you want to insert the new waypoint. The cursor () will change to a plus symbol (). You can then click to insert a new waypoint in that location.

Note: The new waypoint that you insert will be assigned the next number available. For example, if a route contains four waypoints and you insert another, the new waypoint will be called Waypoint 5 regardless of its position in the route. You can modify the names of your waypoints as you like: right-click on a waypoint and choose Edit Route Waypoints to change name, symbol, color, etc.

Moving a Waypoint

With the Route tool selected, hold the cursor over the waypoint until the cursor () changes to a hand symbol (). Drag the waypoint to a new location.



Appending to (Adding On to the End of) a Route

To continue building on to the end of an existing route, right-click any waypoint and choose **Append to Route**. You can then pick up where you left off, and add as many waypoints as you like.

Looping a Route

To join the last waypoint to the first, right-click on any waypoint and choose **Toggle Route Loop**. If your route forms a single enclosure, you can find out its area by right-clicking on any waypoint and choosing **Route Information**. To "unloop" a route, select **Toggle Route Loop** again.

Reversing the Order of Waypoints

To reverse the waypoint sequence so that the last waypoint becomes first, right-click any waypoint, choose **Edit Route Waypoints**, and click the **Reverse** button. This is handy for returning to the start of a route, for the return trip.

Finding a Route

To bring up the map containing a route you've created, click **Find > Route** and highlight the name of the route you want to see. The map containing the route will appear on the screen, centered on the route's starting waypoint. Alternatively, you can use the **Find** button in the **Edit Route** window.

Temporarily Hiding a Route from View

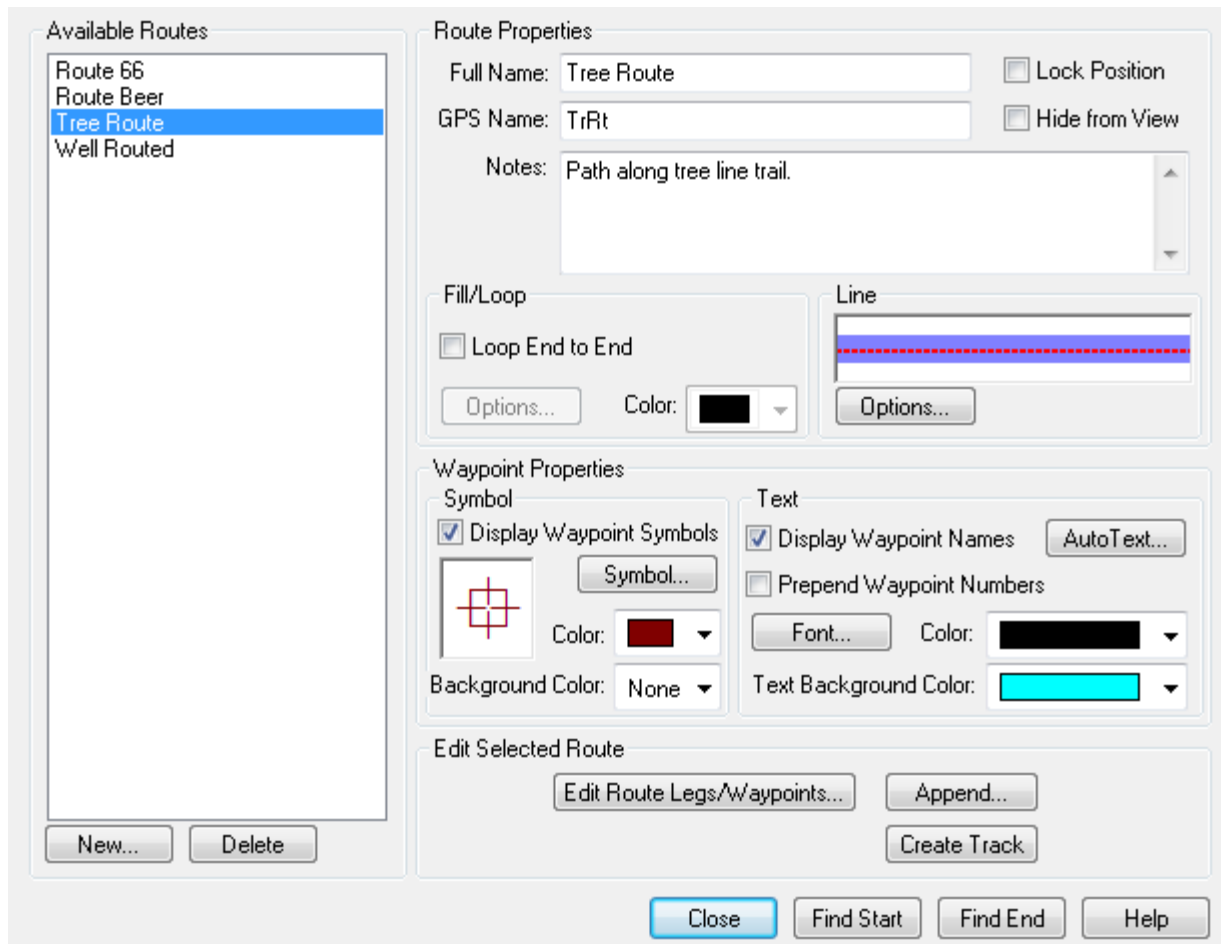
With the **Route** tool, right-click on any waypoint and choose **Hide**. The entire route will be temporarily removed from the map image. To restore it to view, click **View > Layer Visibility** and select the desired **Route** sublayer. Or, you can click **Find > Route** and select the route's name. You can also use the **Toggle Layers** button to toggle all layers on and off at once.

Deleting a Route

To delete a route, right-click on any of its waypoints and choose **Delete Route**. You can also delete routes using the **Edit Routes** window or pressing the **Delete** button.

Edit Routes

Open the **Layers** menu and select **Routes** to view a list of all your routes and edit individual routes' characteristics. Highlight the route you want to edit, then make your changes in the right half of the edit routes window. (You can also open the edit routes window by right-clicking on any waypoint in a route and choosing **Edit Route**. The edit routes window will automatically open with that route highlighted in the route list.)



Available Routes

The left side of the Edit Routes window consists of a list of all the routes that have been created. They are listed in alphabetical order by their full name (see below.) Click on a name in this list to see and edit its properties. Only one route can be selected for editing at a time.

Press the **New** button to create a brand-new route by either a) assigning specific coordinates for waypoint locations, or b) using existing markers as waypoints. Once the starting waypoint is set, you can add legs to the new route by specifying distance and bearing from each waypoint to the next.

Press **Delete** to remove the highlighted route from the active project. Hold the *shift* key (on the keyboard) when clicking Delete to remove all of the routes from the active project. (As an extra precaution against accidental route removal, this feature must be first enabled in General Preferences.)

Route Properties

The right side of the window displays the various options for how the route is to appear on the map. As these properties are adjusted the map display (behind the Edit Routes window) will be updated. (Click and drag the window's title bar to position it so that you can observe these changes.)

The **Full Name** of the route is used throughout Terrain Navigator Pro to refer to this collection of waypoints and legs. For example, the Full Name appears in the list of available routes (in the left side of this window), and when the Find Route command is selected.

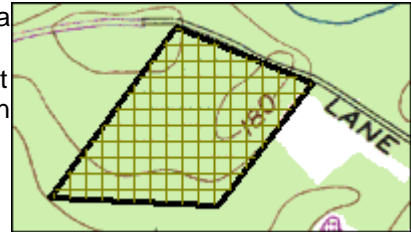
The **GPS Name** is displayed when the route is sent to the GPS. Because many GPS units support a limited number of characters for their route names, Terrain Navigator Pro keeps the GPS Name and the Full Name separate. Moreover, Terrain Navigator Pro automatically abbreviates the Full Name as the GPS name and will limit its length based upon the GPS selected.

A space for **Notes** is provided to record a more detailed description, or any additional information desired.

When **Lock Position** is checked, the route will remain in a fixed position on the map, so that it cannot be accidentally moved.

Check the **Hide From View** box to prevent this route from being shown on the map. Clear the box to display the route on the map. Individual routes can also be shown and hidden through the use of the Layer Size/Viability window.

Use the options in the **Fill/Loop** area to create a polygon or closed area from the route by connecting the last waypoint with the first with a leg. Note that Terrain Navigator Pro will automatically draw this leg segment when **Loop End to End** is checked. (Placing the final route waypoint on top of the first does not have this same effect.) Once the route is looped, press **Options** to set up how the area should be filled or shaded (if desired.) If the area is filled with either an opaque or semi-transparent pattern, the **Color** can also be adjusted. Also, buffers can be created either inside or outside of the closed area.



Press the **Line Options** button to open the Line Options window. This allows the thickness and pattern of the leg segments between routes to be modified. A preview is given to indicate how the segment will be displayed against the map. Note that the thickness of the line can also be modulated in the Layer Size/Viability window. This thickness can expand or contract as the map scale changes (so that the segments conform consistently with their position on the ground) or the thickness can stay the same, regardless of map scale.

Waypoint Properties

Like Route Properties (described above) the Waypoint Properties apply to the entire route. However, if adjustment of individual waypoints is desired, press the Edit Route Legs/Waypoints button near the bottom of the window.

Check **Display Waypoint Symbols** to show the symbols on the maps. Hiding the waypoint symbols and the waypoint names can make a route appear as a track, but all with all of the editing flexibility of a route. To choose a different symbol, click the **Symbol** button. Several *General* symbols and multiple **colors** are available for marking each waypoint's location on the map. If you have installed the optional Emergency Management SymbolPack and you would like to use the emergency response or fire symbols instead of the *General* symbols, click the **Symbol** button and select a category from the drop down menu at the top of the window. Also, any system font can also be used as a waypoint symbol - allowing a limitless number of annotation possibilities. A preview is provided to indicate how each waypoint will appear along the route.

Check **Display Waypoint Names** to show the names of each waypoint on the map; unchecking it will hide the waypoint names. (Uncheck both Display Waypoint Symbols and Display Waypoint Names to have the route appear as if it were a track.) Check **Prepend Waypoint Numbers** to display the number

of each waypoint before the waypoint's name. Select a **Font** and **Color** for the text of your waypoint names. If you like, you can choose to place an opaque **Text Background Color** behind the text, to make waypoint names easier to read.

Press **AutoText** to automatically append location information to each waypoint name displayed on the map. The **AutoText** will automatically update itself if the waypoint is moved. You may choose to include *Coordinates, Street Address, Elevation, or Grade*.

Additional Editing Options

There are additional operations that can be performed upon the route selected in the list of Available Routes.

Press **Edit Route Legs/Waypoints** to adjust the individual legs (lines) in this route or the individual waypoints. For example, if most of the waypoints in a route should be a circle symbol, but one should be a star, press **Edit Route Legs/Waypoints** and set the desired waypoint to appear as a star. This window can also be used to specify a unique name for each waypoint, adjust the coordinates of each waypoint, add notes for each waypoint, or to adjust the azimuth or quadrant bearing of each leg.

Press **Append** to access the Select Route to Append window. A list of all the other routes in the Project will appear. Selecting a route from this list will add the waypoints in that route to the end of the route previously selected in the Edit Route window. The route the waypoints are added from will not be deleted or changed.

Press **Create Track** to make a new track that consists of the waypoints in the selected route. After being prompted for the name of the new track, each waypoint in the route will be converted into a track point. Alternatively, an existing track can have the waypoints from this route appended to it (extending that track further) or any existing track can be replaced with the waypoints from this route (deleting the existing track.)

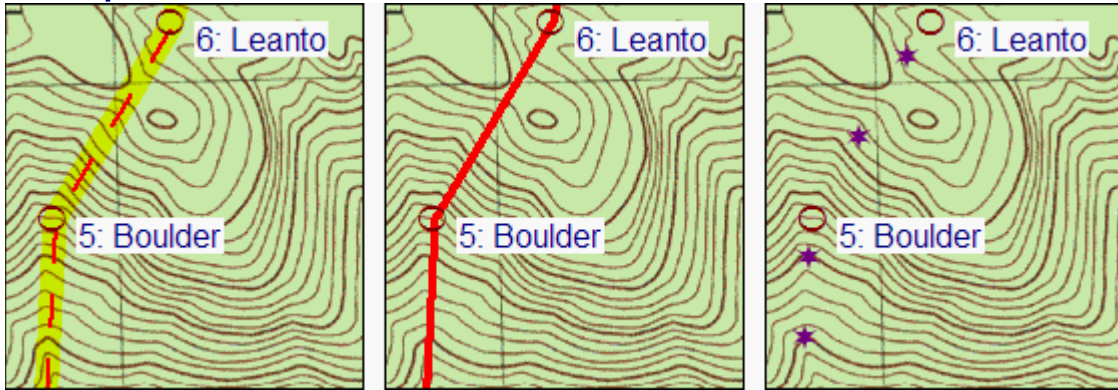
Exiting the Edit Route Window

Press **Close** to exit the Edit Route window. Any changes made will be automatically saved, and the map being displayed will not change position.

Press **Find Start** to close the Edit Route window and shift the map display so to be centered upon the first waypoint of the route.

Press **Find End** to close the Edit Route window and shift the map display so to be centered upon the last waypoint of the route.

Line Options



Click the "Line" **Options** button in the Edit Routes window or Edit Overlays window to change the style of the *legs* - the lines that join the waypoints. Select a line style, color and width. You can also highlight the legs to make them more visible on the map. If you prefer, Terrain Navigator Pro can omit the lines from the map and instead place symbols at regular intervals along the route legs. To do this, select **Symbol** under "Symbol Lines." There are several dozen symbols to choose from in the *General* style, or you can pick from any system font which allows you to use any character within a font set as a symbol for your legs. If you wish, click Rotate and enter a number into the Degrees box to rotate the symbols. You can also specify that the symbol's orientation rotate to match that of the direction of the route.

If you have installed the optional Emergency Management SymbolPack and you would like to use the Fire Symbol line styles instead of the *General* style, select **Fire Line Styles** from the "Available Styles" drop-down menu.

Fill Options

The fill options window lets you specify a color and/or pattern for filling looped Routes or Tracks, or for filling polygon Overlays. (To loop a route or a track, right-click on the object and select **Toggle Loop**.)

To reach the fill options window for a Route or Track, right-click the desired Route or Track and choose **Edit Route** (or **Edit Track**), then check the "Loop" check box and under "Fill," click the **Options** button. You can also set your preference for fill options for Routes and Tracks.

To reach the fill options window for a polygon Overlay, right-click the desired Overlay and choose **Edit Overlay**, then check the "Override embedded Styles" check box and under "Fill Style," click the **Options** button.

Fill Location

The Location specifies where you wish the fill pattern to be applied relative to the shape of the area.

There are three options:

- **Inside:**
The entire interior of the loop will be filled with the color and pattern you choose. Note: For Overlays, only the Inside location is available.
- **Inside Buffer:**
The fill color/pattern will extend inward from the line, towards the center of the loop, but only as far as you specify under the Buffer Size setting. Inside buffer is not available for Overlays.
- **Outside Buffer:**

The fill color/pattern will extend outward from the line, outside the loop, only as far as you specify under the Buffer Size setting. Outside buffer is not available for Overlays.

Fill Buffer

When an Inside or Outside Buffer is chosen, the Buffer **Size** specifies the width of the pattern/color displayed. For example, if an Inside buffer of 100 feet is specified, the Fill Pattern and Color will extend 100 feet from the edge of the area being displayed towards the center of the line.

Since Overlays can only be filled entirely within the area, Buffer Size is not available when filling a polygon Overlay. However, you can convert the overlay object to a route or track, then use the Fill options to create a buffer area - if that is the desired effect.

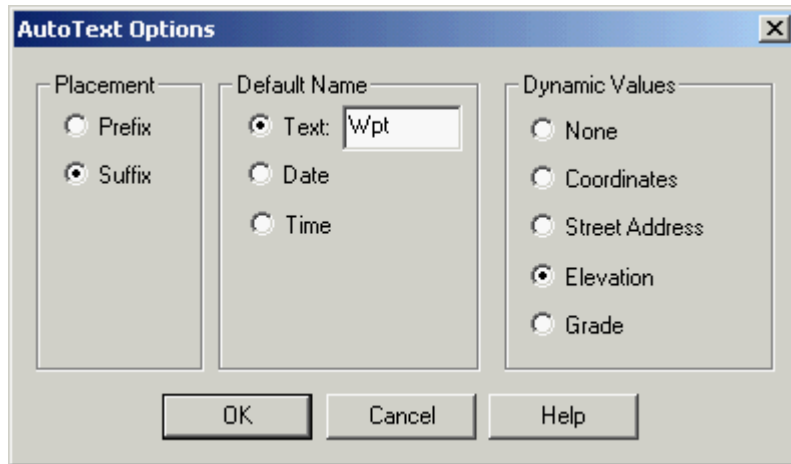
The unit specified as a Fill Buffer is saved with the route or track. Its initial value is set in the route (or track Preferences) - and not by the distance unit specified in Unit Preferences. Thus, if you specify a fill buffer of 100 Meters (while your unit preference for distance is in Feet), when you return to this window in the future 100 Meters will be indicated (regardless of the setting specified in Unit Preferences, or in Route/Track Preferences.)

Fill Pattern, Color

Choose a pattern and a color for the fill. Besides some interesting choices of various hatch patterns, the Patterns available include "none" (for a fully transparent fill), a solid block (for a fully opaque area of the color of your choice), and a semi-transparent area which will "shade" the map area with the color of your choice - but not completely obscure the features of the map.

Route AutoText (For Entire Route)

The AutoText feature lets you include location information along with the waypoint name on the map. You may choose to include **Coordinates**, **Street Address**, **Elevation**, or **Grade**.



AutoText Updates Itself Automatically

AutoText is so called because it automatically updates itself whenever necessary. For example, if you attach AutoText Coordinates to a waypoint, and then you move the waypoint, the AutoText figure will change accordingly.

Placement

The AutoText will be included on the same line as the waypoint name. Decide whether you want the AutoText to appear before the waypoint name (as a **Prefix**) or after it (**Suffix**).

Dynamic Values

Choose **Coordinates**, **Street Address**, **Elevation**, or **Grade**. The information will appear on the map, on the same line as the waypoint name.

Note: When using AutoText to show elevation, keep in mind that spot elevations in Terrain Navigator Pro are *approximate*.

To remove AutoText, choose **None**.

Setting Defaults for AutoText

You can set preferred AutoText for Terrain Navigator Pro to use every time you create a new route. To specify your preferred settings, click File > Preferences > Routes.

Specifying Different AutoText for Individual Waypoints

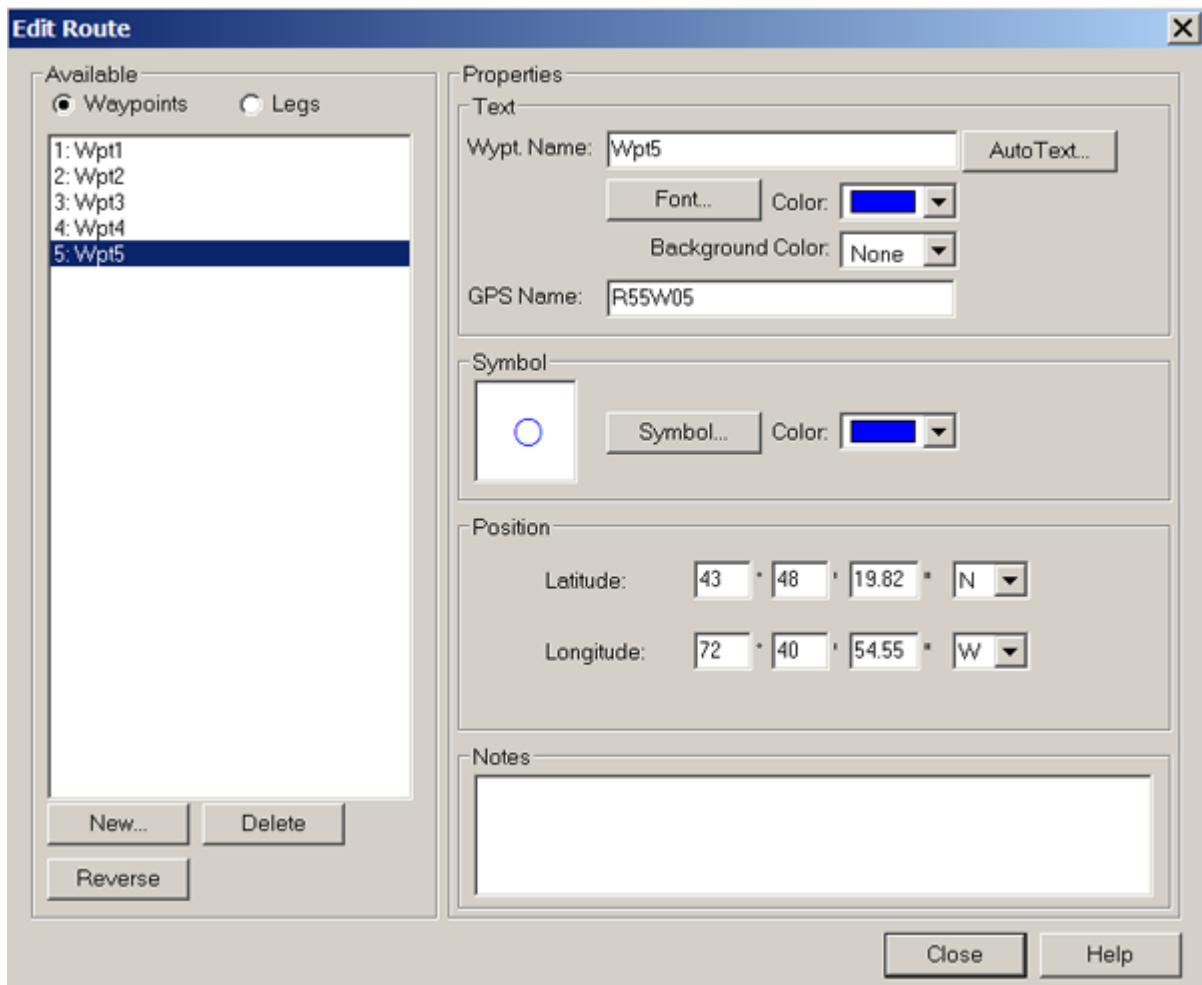
Right-click on a route and choose Edit Route Waypoints to make individual changes.

Edit Route Waypoints

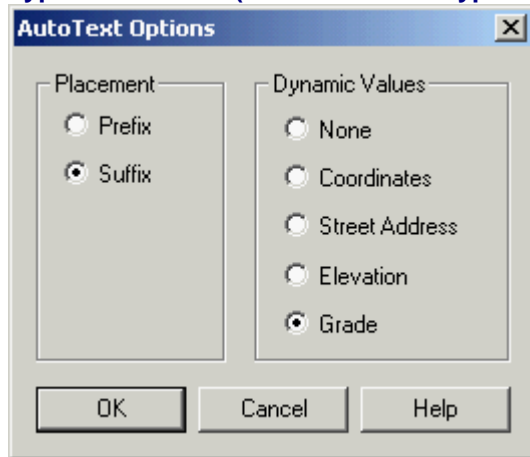
While the edit routes window lets you apply settings to a route as a whole, the edit waypoints window lets you modify *individual* waypoints. (Select the **Legs** button at the top of the window to modify the legs of the route.)

To open the edit waypoints window, select **Layers > Routes** and click the **Edit Legs/Waypoints** button, or right-click on any waypoint and choose **Edit Route Waypoints**. Ensure that **Waypoints** is selected at the top of the window.

On the left side of the window is a list of all waypoints in this route. Highlight the waypoint you want to edit.



Waypoint AutoText (for Individual Waypoints)



AutoText is location information that you may include along with the waypoint name on the map. To make adjustments to individual waypoints' AutoText, click **Layers > Routes**, select the route name, and click **Edit**. Highlight the waypoint you want to work with. The Edit Waypoints window includes an AutoText button, where you can apply settings to the highlighted waypoint only.

AutoText Updates Itself Automatically

AutoText is so called because it automatically updates itself whenever necessary. For example, if you attach AutoText Coordinates to your waypoints, and then you move a waypoint, the AutoText figure will change accordingly.

Placement

The AutoText will be included on the same line as the waypoint name. Decide whether you want the AutoText to appear before the waypoint name (as a **Prefix**) or after the name (**Suffix**).

Dynamic Values

Choose **Coordinates**, **Street Address**, **Elevation**, or **Grade**.

To remove AutoText, choose **None**.

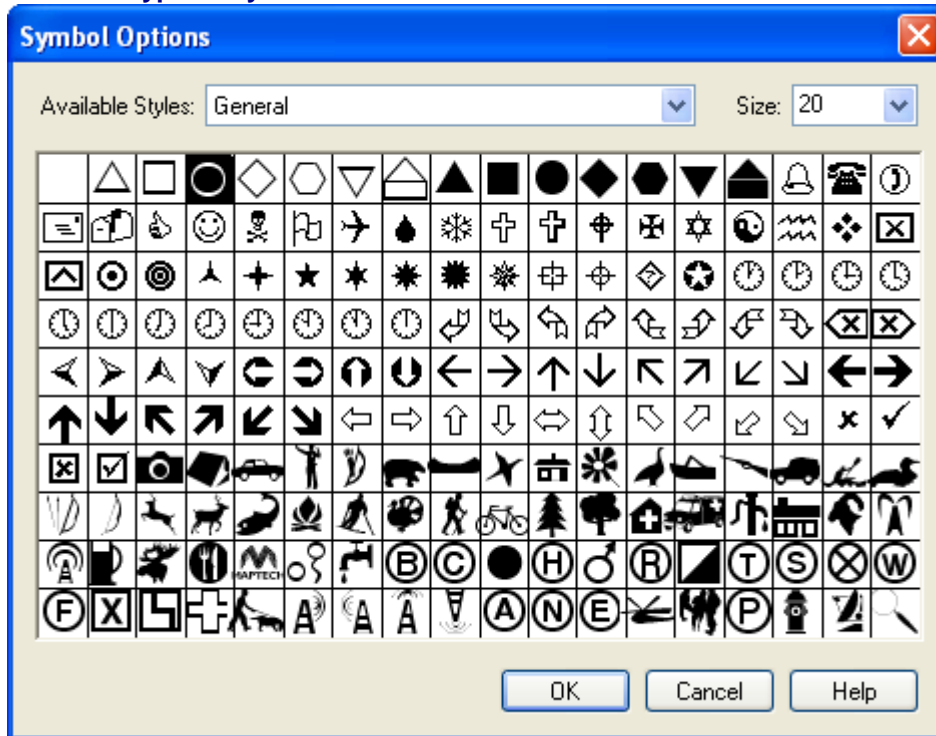
Note on Elevation:

When using AutoText to show elevation, keep in mind that spot elevations in Terrain Navigator Pro are approximate.

Setting Defaults for AutoText

You can set preferred waypoint AutoText for Terrain Navigator Pro to use every time you create a new route. To specify your preferred settings, click **File > Preferences > Routes**.

Marker/Waypoint Symbols



Several symbols are available for marking locations on the map. The **General** symbol style is selected by default. Additional styles are available in the Emergency Management SymbolPack. Symbol **Size** controls how large the symbols will be: the default size is 20.

Another Available Style is **System Font Symbols**. This allows you to use any character within a *TrueType* or *Outline* font set as a symbol for your Marker or Waypoint. Since there are millions of font sets available for Windows, there are virtually no limits to the ways maps can be annotated with Terrain Navigator Pro.

For additional information on symbol sizing, please see the discussion on Layer Size/Visibility.

New Waypoint

This window lets you add a waypoint to the END of your route. To bring up the new waypoint window, right-click the route and choose **Edit Route Waypoints**, then click the **New** button found the Route Waypoints window.

Why use this method?

- To add an existing marker as a waypoint in your route, or
- To add a new waypoint at specific coordinates.

Note: If you want to insert new waypoints in the middle of your route instead of at the end, you can simply add new waypoints by *clicking on the map with the route tool*. If you want to insert an existing marker into the middle of your route, you can do this by adding a new route leg.

Adding an Existing Marker as a New Waypoint

To take a marker that's already present on the map, and add it as a waypoint at the END of your route, click the drop-down arrow next to the **Name** blank. This will present a list of all your markers; choose the one you want to add to your route.

Creating a New Waypoint by Typing Coordinates

To create a new waypoint completely from scratch, fill in all the blanks in this window, including coordinates.

Name: The full name of this waypoint.

GPS Name: For GPS use. This is the name by which this waypoint will be known if you transfer this route to a GPS. Terrain Navigator Pro creates a GPS Name automatically when you type the full name, but you can change the GPS Name if you wish. Just make sure the GPS Name is descriptive enough so that you will recognize this waypoint on your GPS screen.

Comments: A space for you to record notes about this location. Your comments will be included if you transfer this marker to a GPS unit (you may want to find out whether your GPS has a length limit for comments - some units do not support comments at all).

Coordinates: Type the coordinates of the location where you wish to place this waypoint. The coordinate system presented here is taken from your settings in General Preferences.

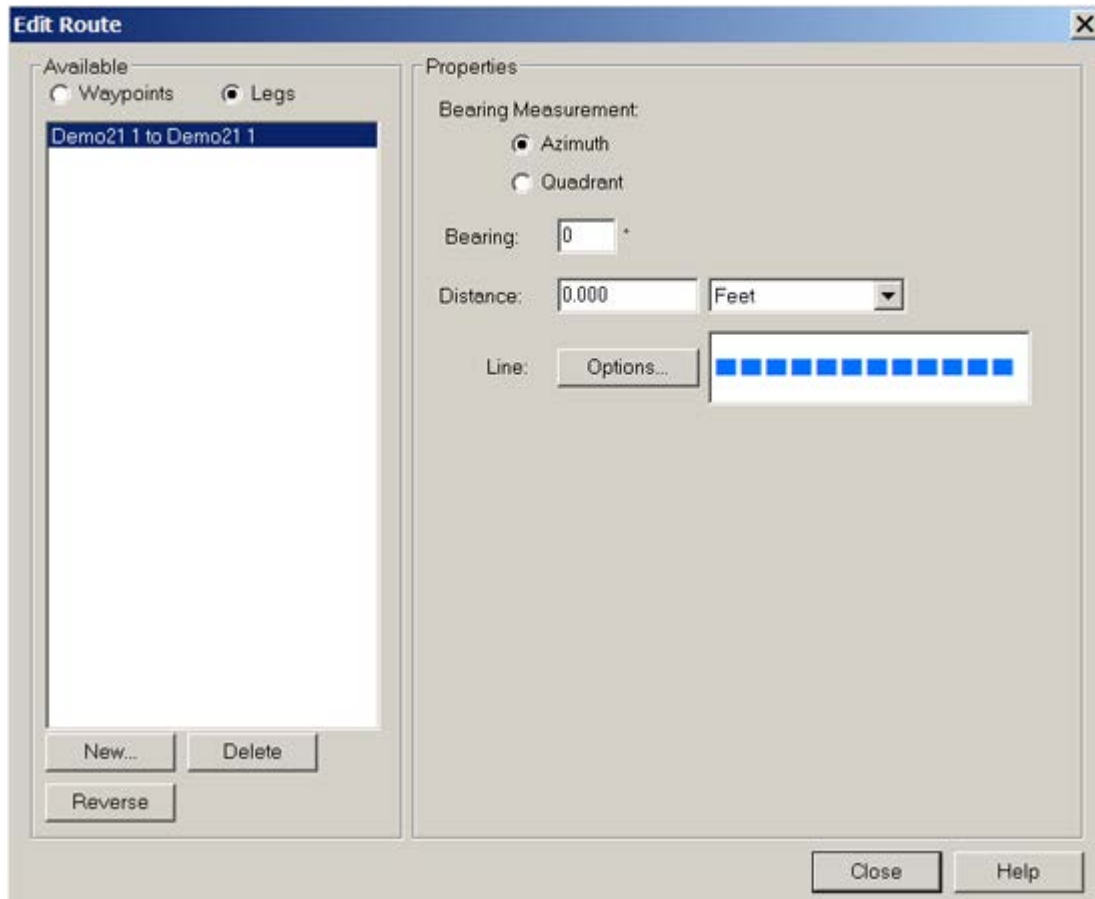
To edit the symbol and/or color for this new waypoint, click **OK** to return to the Edit Waypoints window.

Edit Route Legs

To get to the edit route legs window, click **Layers > Routes** and click the **Edit Route Legs/Waypoints** button. Select the **Legs** button at the top of the window.

This window tells you the distance and bearing from each waypoint to the next. You can change these figures, change the line color used for specific route legs, and add new route legs by inserting additional waypoints.

Highlight a route leg in the list at left, then make changes:



New Route Leg

This window lets you add a new waypoint, and therefore a new route leg, to the middle or end of a route. The new waypoint is positioned in reference to one of the waypoints already present.

To get to the new route leg window, right-click the route and choose **Edit Route Waypoints**, select the **Legs** button at the top of the window, then in the Edit Route Legs window, click the **New** button.

Why use this method?

Use this method if you want to place the new waypoint at an exact distance and bearing from another waypoint.

Note: If you don't need this level of precision, you can just insert new waypoints by *clicking on the map*.

Reference Waypoint

Your new waypoint will be placed in reference to this existing waypoint. The reference waypoint is the waypoint that was highlighted in the Waypoint List (in the previous window). To change the reference waypoint, click **Cancel** to return to the route waypoints window, then highlight another waypoint to use as a reference point, and click the **New** button again to start over.

Insert Before/After

Choose where your new waypoint should be inserted in the route: before or after the reference waypoint.

Distance/Bearing From/To

Specify whether the new location is measured **from** the reference waypoint, or **to** it. Then, enter the bearing and distance in the blanks at the bottom of the window. You can specify bearings using azimuth measurements, or PLSS quadrants: make this selection in the Edit Route Legs window before you click the **New** route leg button. (Be sure you have set Terrain Navigator Pro to use your preference of Magnetic or True North - this setting is found in Coordinate Preferences.)

Example:

If you want to place the new waypoint 800 feet due east of the reference waypoint, you could specify a Bearing of **90 degrees (True) FROM** the reference waypoint, and specify 800 feet for distance. On a north-up map (such as most USGS topographic maps), this would position the new waypoint to the right (east) of the reference waypoint. The same result could be obtained by specifying a bearing of **270 degrees TO** the reference waypoint.

Tip: When assigning bearing, think of a compass rose centered on a waypoint. If you're measuring bearing FROM the reference point, imagine the compass centered on the reference point. If you're measuring bearing TO the reference point, imagine the compass centered on the new waypoint.

Other Characteristics

Name: The name of the new waypoint.

GPS Name: For GPS use. This is the name by which this waypoint will be known if you transfer this route to a GPS. Terrain Navigator Pro creates a GPS Name automatically when you type the full Name, but you can change the GPS Name if you wish. Just make sure to use something that you will recognize if you use this waypoint in your GPS.

Comments: A space for you to record notes about this location. Your comments will be included if you transfer this marker to a GPS unit (you may want to find out whether your GPS has a length limit for comments).

To edit the line style/color for this new leg, click **OK** to return to the Edit Route Legs window.

To edit the new waypoint's symbol/color, click **OK** and select Waypoints at the top of the Edit window.

Route Information

To get information about a route and the map that contains it, right-click on any of its waypoints (not route legs) and choose **Information**.

The right side of the window provides information on the waypoint that you clicked on: its full **name**, its **elevation** and **latitude/longitude**, whether or not the waypoint is **locked** in place and any **comments** you may have recorded about this location. You'll also find the waypoint's **GPS Name** - the name that will be used for this waypoint if you transfer this route to a GPS unit.

Route area is given IF the entirety of your route forms an enclosure. The start and end waypoints must be the same, and the route line must not cross back over itself or overlap. If only a portion of the route forms a loop, area calculation is not possible.

Buttons along the bottom of the window allow you to view the Profile or Line-of-Sight calculations for this route.

The screenshot shows a dialog box titled "Route Information" with a close button (X) in the top right corner. The dialog contains the following information:

- CD Name: Maine, Central
- Map Name: CARIBOU LAKE SOUTH
- USGS Ref. Code: 45069-G3-TF-024
- Map Scale: 1:24,000
- Map Type: Topographic (Feet)
- Vertical Datum: National Geodetic Vertical Datum 1929
- Horizontal Datum: North American Datum 1927
- Contour Interval: 20 feet
- Created/Printed: 1988
- Revised/Inspected: None
- Waypoint: Wpt5
- Elevation: 995 feet
- Latitude: 045° 49' 09.75" N
- Longitude: 069° 18' 45.75" W
- Route Name: Rte3
- Route Length: 1 mile, 3956 feet
- Route Area: Unclosed Route
- Locked: No
- Description:

Below this information is a table with the following columns: From, To, Distance, Heading, and Elevation.

From	To	Distance	Heading	Elevation
Wpt1	Wpt2	1664 feet	132°	-59
Wpt2	Wpt3	2282 feet	152°	+16
Wpt3	Wpt4	2448 feet	130°	-14
Wpt4	Wpt5	2841 feet	40°	-23

At the bottom of the dialog are five buttons: OK, Print..., Profile..., Line of Sight..., and Help.

Appending Existing Routes

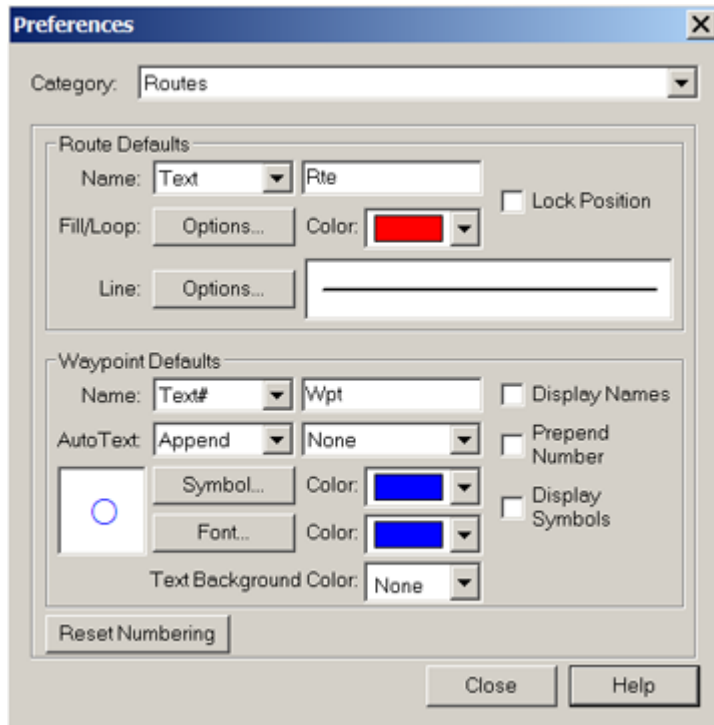
To join one route to another, open the Edit Routes window (open the **Layers** menu and choose **Routes**). Highlight a route and click **Append**, then select the route you would like to append to it. The *end* of the first route you selected will be joined to the *start* of the second route.

The first route will be extended to follow the path of the second route. The second route will remain unchanged. You will still have two routes, with the same two names, but the first route will be longer.

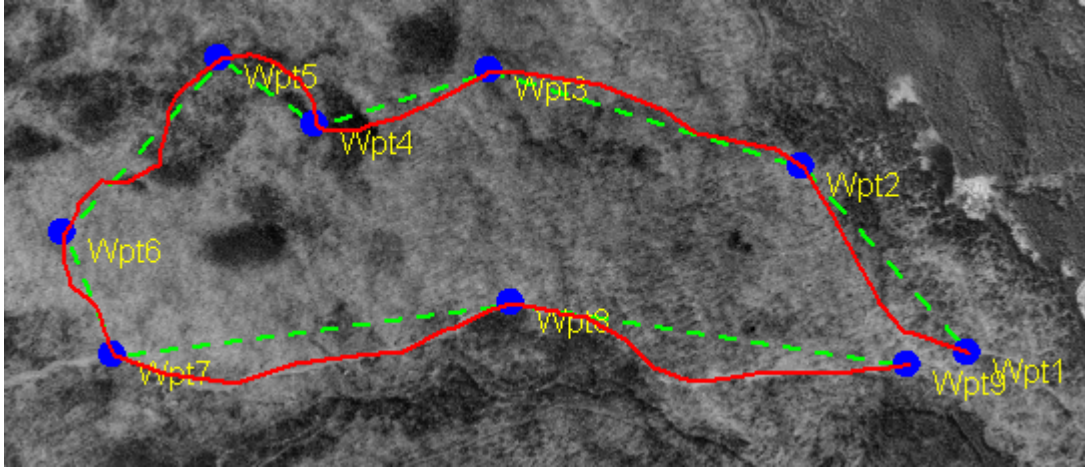
Because the two routes will now (partially) overlap, use the Layer Size/Visibility window to determine which one to show. Alternatively, use the Edit Route window to delete the unneeded route.

Route Preferences

Click **File > Preferences > Routes** to adjust the default settings that Terrain Navigator Pro will use for any new routes you create.



Creating a Route from a Track/Distance Line Creating a Polygon from a Track/Distance Line



The easiest way to follow a path of travel with a GPS unit is to create a route. If you have a path, marked by a track or a distance line, and you would like to follow it with your GPS, Terrain Navigator Pro can convert it into a route for you.

With the ability to create a route from a track, you can trace a trail by hand in Terrain Navigator Pro (or transfer a track log from your GPS after a day of hiking), and easily convert the trail into a route that you can use with your GPS, to follow the same trail. A GPS track log can show where you have been, but you need a route in order to follow a trail with a GPS.

This feature is also available to create a polygon from a track or a distance line. In this case, the shape created by the track/distance line will be closed to form an enclosed area. A typical application might be to walk the perimeter of a property with a handheld GPS or the TNP Mobile App and record a track. Then use the convert track to polygon feature to create a polygon that can be further refined.

Notes:

- You can generate as many routes (or polygons) as you like from a single track/distance line.
- The original track/distance line is NOT deleted.
- When creating waypoints/vertices by distance, the final leg may be shorter than requested, unless the total path length happens to be exactly divisible by X feet).

Using the Create Route/Polygon Window

Right-click the track (or distance line) and choose **Create Route** or **Create Polygon**. Several automated methods are available.

The window shown here is for creating a route. The window for creating a polygon is virtually identical and operates in exactly the same way. The only difference is that the terminology is specific to polygons (waypoints vs. vertices) and the result will be a closed figure rather than an unclosed line.

Name

Specify the name you would like the new route (or polygon) to have.

Create Waypoints by Direction Change

Lets you specify the level

of accuracy you require. Terrain Navigator Pro will create as many waypoints/vertices as necessary, at whatever locations work best to keep the route in line with the path, within the bounds you specified.

The smaller the error you allow, the more waypoints Terrain Navigator Pro will create.

Create Waypoints by Distance

At least X feet apart

Wherever possible, the legs of the new route (or edges of the polygon) will be least this long. For straight stretches, waypoints may be placed farther apart.

Exactly X feet apart

Terrain Navigator Pro will place the waypoints/vertices at this regular interval along the track/distance line.

It is important to remember that when calculating the equal spacing intervals, Terrain Navigator Pro is working from the track/distance line. Due to curves in the track/distance line, waypoints may be closer together than the distance you specified. For example: Suppose you request that waypoints be placed exactly 200 feet apart. Terrain Navigator Pro follows your path and places a waypoint every 200 feet. Between two waypoints there is a hairpin turn. When the path is removed from view and only the route is shown, you will see that the two waypoints are closer together than the distance you specified. In such a case, you may wish to create a different route, using a different method (like direction change - see above).

Create Waypoints by Number

Spaced equally

As when creating waypoints by distance, you should keep in mind that Terrain Navigator Pro is gauging distance by the track/distance line, and that the resulting route legs may not be of equal length.

Spaced as needed

Terrain Navigator Pro will place the requested number of waypoints/vertices at whatever locations best follow the path of the track/distance line.

Create Waypoints for All Points

Creates a waypoint/vertex whenever a track point is placed.

Conversion Complete

Name:	Polygon 147
Vertices:	8
Error:	95 feet
Average Spacing:	897 feet
Shortest Edge:	400 feet
Longest Edge:	2042 feet


Once the route (or polygon) is created, you will be presented with an information window showing the statistics for the newly created layer. A Delete button is available if you inspect the new route/polygon and discover that it does not meet your satisfaction. Note that the original track line is still available. It will not be deleted if you delete the newly created shape.

The *Error* shown in the finished information window indicates the longest distance between any point on the original track to the line of the resulting route (or edge of the polygon.) If the error is unacceptable, press Delete to remove the new route/polygon, then try creating a new one with different options. In most applications, an error around 50 feet is acceptable - based on the overall accuracy of a handheld GPS and a USGS topographic map.

Tip: Use the Layer Selector to hide the track once you have created a route (or polygon) based on its coordinates.

Tracks

Tracks

 The Track Tool lets you create lines, or tracks, on the map. Tracks are saved for future reference and may be included on printed maps.



Tracks from GPS and Mobile Devices

Terrain Navigator Pro lets you import tracks from a GPS unit, synchronize tracks recorded in the TNP Mobile App, or record GPS tracks in real time.

Creating a Track by Hand

To create a track by hand, select the Track Tool button on the toolbar. Click where you want to start the track, and continue to click to add track segments. You can also drag the cursor (holding the left mouse button down) to create a curved line.

*To back up and erase the last portion that you drew, press the **Backspace** button or the **Delete** button on your keyboard. Press the key several times, or hold it down, to delete multiple sections.*

*To temporarily switch to the Drag tool, hold down the **Control** key. Also, the Drag tool will automatically appear when the cursor approaches the edge of the map window, as long as the **Hand drag near map edge** option is checked in General Preferences.*

When finished creating a track, click the **Finish Track** button to the right of the elevation display on the toolbar. You can also finish a track by clicking the Track Tool button again, by right-clicking the track line and choosing **Finish Track**, or click the Finish Track button that appears in the upper right side of the toolbar.

Note: *Once finished, the path of the track cannot be modified. You can change the line's color, and you can add to an existing track line using the Distance Tool, but the shape of the track cannot be changed. You can, however, convert the track to a route and edit the track as a route with all of the route tools and options. You can also split the track into two (or more parts) by right-clicking on the spot where you want to separate the track, and choosing **Split**.*

When a track is selected for editing using the track tool, a green dot marks the starting point of the track, and a red dot marks the end of the track. This makes it possible to distinguish how the track will appear in the Profile/Line of Sight window, which end will be appended to, etc. These dots will only appear when the track is selected for editing - they will not appear when the track tool is not active, nor will they appear on any maps printed or exported.

Editing Your Track

To assign a name to your track, and/or to change its color, right-click the track line and choose Edit.

Looping a Track

To join the end of a track to the beginning and form a loop, right-click the track and choose **Toggle Loop**.

Finding Length and Area

Right-click a track line and choose **Information**. The Track Information window gives the track's exact length and the option to view an elevation profile. If the track forms an enclosure, Track information will also give the exact area of the enclosure.

Transferring Track Logs from your GPS Unit

In addition to creating tracks by hand, you can also import track logs into Terrain Navigator Pro from your GPS.

Appending (Merging) Tracks

To append one track to another, highlight a track name in the Edit Tracks window and click the **Append** button. Select the track you'd like to merge it with. The tracks will be joined in the order in which they were created: in other words, the end of the first track will be joined to the start of the second track. For details, please see Appending and Splitting Existing Tracks.

Splitting a Track into Two Parts

To split an existing track into two parts, **right click** on the spot along the track line where you wish to separate the track and select **Split**. Note that since the two tracks will share the same name, you may want to Edit one (or both) of the resulting tracks to change its name, color, etc.

Deleting a Portion of a Track

To remove a portion of an existing track, **right click** on the spot along the track line where you wish the track line to end and select **Split**. Then, **right click** anywhere along the portion you wish to discard and select **Delete**. This will delete the track from the point where it was split to its end. Or, use the **Split** option on two points along the track, then **Delete** the middle portion. This is particularly handy when a track was recorded in multiple, disjointed segments but are connected together in Terrain Navigator Pro. (To avoid this issue on future track transfers, disable the *Combine segments into single track upon receipt/import* option in Track Preferences.)

Creating a Route Based on a Track

Tracks are great visual tools for showing a trail's location on a map, but if you want something to follow with your GPS, you will need to create a route based on the track. Terrain Navigator Pro offers several options for instantly converting tracks into routes. The track line will remain on the map, plus you'll have a route to follow in the field. In addition, tracks can be created from a route - allowing you to convert a route back to a track once it has been edited.

Deleting a Track

To delete a track, right-click the track line and choose **Delete**. (The Edit Tracks window also provides a Delete function: open the **Layers** menu, choose **Tracks**, highlight a track name, and click **Delete**). Make a mistake? Select **Undo** from the Tools menu!

Temporarily Removing a Track from View

To remove a track from the map, without deleting it permanently, you can *hide* it. Right-click the track line and choose **Hide**, and the track will disappear. To restore it to the map, use the Layer Selector and select the desired Track sublayer. Or, you can use the Layer Toggle button to toggle all layers on and off at once.

Printing Tracks

Tracks may be included on a printed map. Ensure that the track is visible the map (i.e., not hidden), then open the **File** menu and choose **Print**. Make sure to check the **Print Layers** checkbox in the Print window (and that Tracks are selected by pressing **Select Layers**.) To print a page with track information (name, distance, number of points) open the **Pages** tab of the Print window, and check the **Include layer Information page(s)** checkbox.

Finding a Specific Track

To quickly find a track, open the **Find** menu, choose **Track**, and highlight the name of the track you want to view. Terrain Navigator Pro will open the correct map, centered on the track's starting point.

Reversing a Track

A Reverse Track button is available in the Edit Tracks window. This allows you to "flip" the track such that the first point becomes the last, and the last its first. This can also be accessed by right clicking on the track and choosing **Reverse**. The reverse function can come in handy when creating a route from a track, or appending and splitting tracks. Note that if the track contains any recorded times, these will not be affected by the reverse operation. Note that when a track is selected for editing with the track tool, a green dot marks the starting point of the track, and a red dot marks the end of the track.

Edit Tracks

Click **Layers > Tracks** to view a list of all your tracks. Highlight a track to view and edit its characteristics. (To delete the track, press the **Delete** button.)



Fill Options

The fill options window lets you specify a color and/or pattern for filling looped Routes or Tracks, or for filling polygon Overlays. (To loop a route or a track, right-click on the object and select **Toggle Loop**.)

To reach the fill options window for a Route or Track, right-click the desired Route or Track and choose **Edit Route** (or **Edit Track**), then check the "Loop" check box and under "Fill," click the **Options** button. You can also set your preference for fill options for Routes and Tracks.

To reach the fill options window for a polygon Overlay, right-click the desired Overlay and choose **Edit Overlay**, then check the "Override embedded Styles" check box and under "Fill Style," click the **Options** button.

Fill Location

The Location specifies where you wish the fill pattern to be applied relative to the shape of the area.

There are three options:

- **Inside:**
The entire interior of the loop will be filled with the color and pattern you choose. Note: For Overlays, only the Inside location is available.
- **Inside Buffer:**
The fill color/pattern will extend inward from the line, towards the center of the loop, but only as far as you specify under the Buffer Size setting. Inside buffer is not available for Overlays.
- **Outside Buffer:**

The fill color/pattern will extend outward from the line, outside the loop, only as far as you specify under the Buffer Size setting. Outside buffer is not available for Overlays.

Fill Buffer

When an Inside or Outside Buffer is chosen, the Buffer **Size** specifies the width of the pattern/color displayed. For example, if an Inside buffer of 100 feet is specified, the Fill Pattern and Color will extend 100 feet from the edge of the area being displayed towards the center of the line.

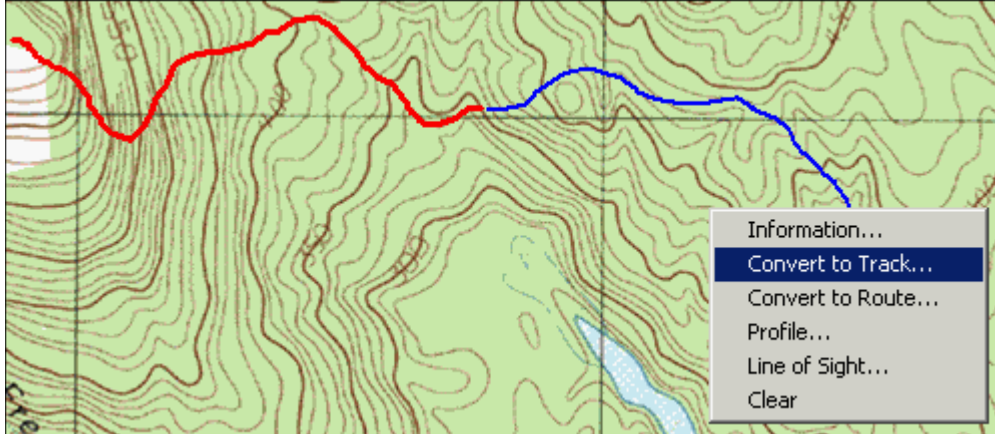
Since Overlays can only be filled entirely within the area, Buffer Size is not available when filling a polygon Overlay. However, you can convert the overlay object to a route or track, then use the Fill options to create a buffer area - if that is the desired effect.

The unit specified as a Fill Buffer is saved with the route or track. Its initial value is set in the route (or track Preferences) - and not by the distance unit specified in Unit Preferences. Thus, if you specify a fill buffer of 100 Meters (while your unit preference for distance is in Feet), when you return to this window in the future 100 Meters will be indicated (regardless of the setting specified in Unit Preferences, or in Route/Track Preferences.)

Fill Pattern, Color

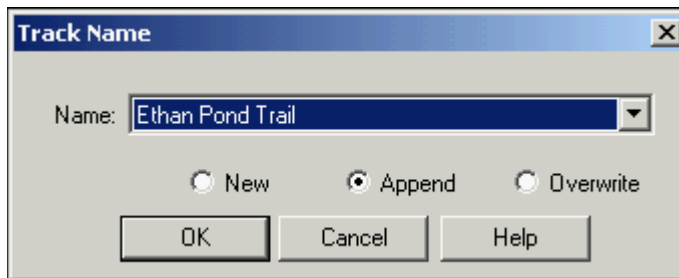
Choose a pattern and a color for the fill. Besides some interesting choices of various hatch patterns, the Patterns available include "none" (for a fully transparent fill), a solid block (for a fully opaque area of the color of your choice), and a semi-transparent area which will "shade" the map area with the color of your choice - but not completely obscure the features of the map.

Converting the Distance Line into a Track



The distance tool is used for measurement, rather than map annotation. Therefore, distance lines are not saved on the map image. However, if you wish to save the path created by the distance line, you may convert it into a track, which *will* be saved.

Right-click the distance line and choose **Convert to Track**. This feature lets you create an entirely **New** track, **Append** to an existing track, or **Overwrite** an old track and replace it with a new track of the same name.



Appending to a Track

To append to a track, select either distance tool, and draw a distance line continuing from the end of the track line. When finished, right-click the distance line and choose **Convert to Track**.

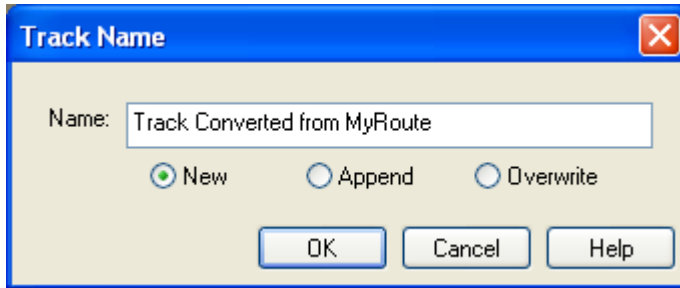
In the track name window, choose **Append**. The Name blank will then become a drop-down list of all your existing tracks. Select the name of the track to which you want to attach this

distance line. The distance line will be added to the end of the track.

Overwriting a Track

The Name drop-down list also appears when you **Overwrite** a track. Select the name of the track you wish to replace, and it will be overwritten with a new track of the same name.

Name New Track



When you're receiving tracks from a GPS, or when you're converting the distance line or route into a track, you will be asked to assign a name to the new track.

Naming Options

Choose **New** if you want this to be a completely new, stand-alone track.

To add on to an existing track, choose **Append**. When you choose Append, the Name field becomes a drop-down list, with the names of all existing tracks. Select the track you wish to build onto. The new track points will be attached to the end of the track you selected.

To replace an existing track, choose **Overwrite**. This will delete the old track that you selected and use the same name for this new track.

Receiving Tracks from GPS

Most GPS units use numbers for track names. Terrain Navigator Pro gives you this chance to assign a more descriptive name to the track that you're importing. This window will appear once for each track that you're receiving.

When you have assigned names to all the tracks you are receiving, Terrain Navigator Pro will retrieve the track points from your GPS and the tracks will appear on the map. You can go directly to a newly received track by clicking **Find > Tracks** and selecting its name from the Tracks list.

Tip: When assigning names to new tracks, it's a good idea to try to keep all your track names unique, so you can tell your tracks apart.

Creating a Track from a Route

While it is possible to make a Route appear on the screen as if it were a Track by hiding the waypoint names and symbols, it may sometimes be desired to create a Track from a route. To create a Track from a Route, right click on the Route and choose **Create Track**. Alternatively, open the Route Editor, select the Route you wish to create the Track from, and press **Create Track**.

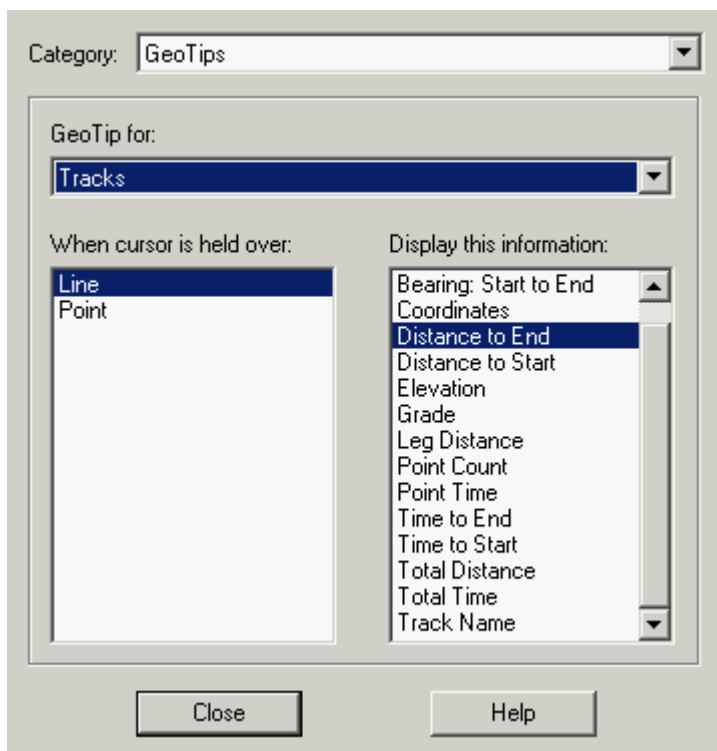
Note that this operation does not delete the old Route, it simply creates a new Track from the existing Route. Thus, both the track and the route will appear on top of each other, unless one is hidden or deleted.

Tip: Use the Layer Selector to hide and show various aspects of your active project.

GeoTips for Tracks

Terrain Navigator Pro's GeoTip feature lets you hover the cursor over a track to get specialized details.

Click **File > Preferences > GeoTips** (or click the Preferences button and select **GeoTips** from the drop down menu at the top of the Preferences window). Under "GeoTip for," select **Tracks**.



You can set Terrain Navigator Pro to display data when you hover the cursor over the track **line**, or over a specific track **point**. Select either item from the menu at left, then choose the information you want to view on the right.

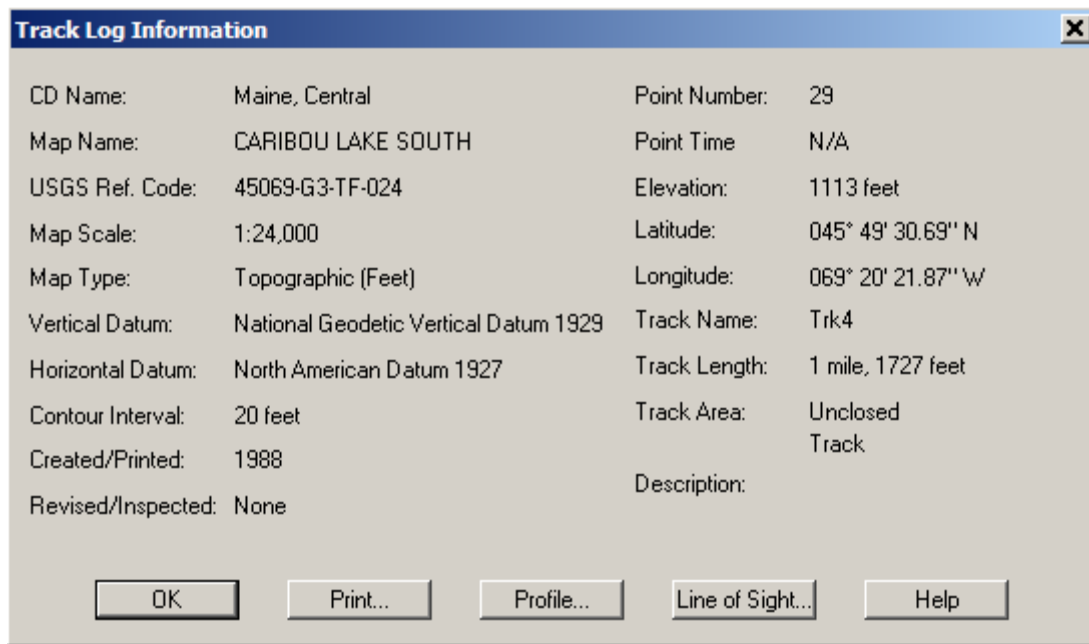
Note: The time-related data items (point time, time to end, total time, etc.) are designed for use with tracks that were recorded with a GPS unit. When used with GPS tracks, GeoTips can provide useful data about the journey that was recorded. Tracks drawn by hand on the map contain no time data.

Track Information

Right-click a track line and choose **Information** to find details about the track, including name, and length. Projected area is also given IF the entirety of your track line forms an enclosure. The start and end points must meet without overlapping, and the line must not cross back over itself or overlap. (If only a portion of the track line forms a loop, area calculation is not possible.)

Buttons along the bottom of the window allow you to view the Profile or Line-of-Sight calculations for this track.

The track information window also provides data about the map containing the track:



Appending and Splitting Existing Tracks

Appending/Merging Tracks

To join one track to another, open the edit tracks window (open the **Layers** menu and choose **Tracks**). Highlight a track and click **Append**, then select the track you would like to append to it. The *end* of the first track you selected will be joined to the *start* of the second track.

The first track will be extended to follow the path of the second track. The second track will remain unchanged. You will still have two tracks, with the same two names, but the first track will be longer. Because the two tracks will now (partially) overlap, use the Layer Size/Visibility window to determine which one to show. Alternatively, use the Edit Track window to delete the unneeded track.

Splitting a Track into Two Parts

To split an existing track into two parts, **right click** on the spot along the track line where you wish to separate the track and select **Split**. Note that since the two tracks will share the same name, you may want to Edit one (or both) of the resulting tracks to change its name, color, etc.

Deleting a Portion of a Track

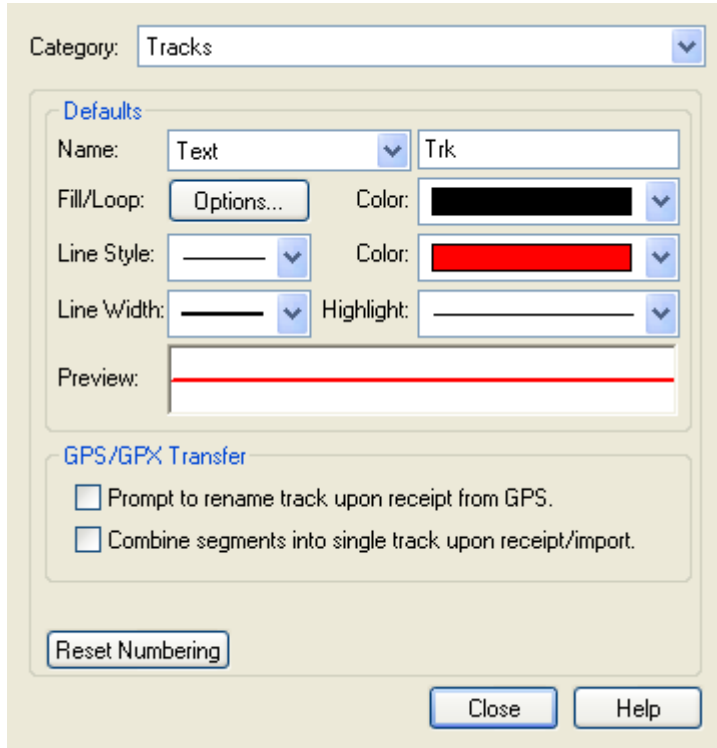
To remove a portion of an existing track, **right click** on the spot along the track line where you wish the track line to end and select **Split**. Then, **right click** anywhere along the portion you wish to discard and select **Delete**. This will delete the track from the point where it was split to its end. Or, use the **Split** option on two points along the track, then **Delete** the middle portion. This is particularly handy when a track was recorded in multiple, disjointed segments but are connected together in Terrain Navigator Pro. (To avoid this issue on future track transfers, disable the *Combine segments into single track upon receipt/import* option in Track Preferences.)

Reversing a Track

A Reverse Track button is available in the Edit Tracks window. This allows you to "flip" the track such that the first point becomes the last, and the last its first. This can also be accessed by right clicking on the track and choosing **Reverse**. The reverse function can come in handy when creating a route from a track, or appending and splitting tracks. Note that if the track contains any recorded times, these will not be affected by the reverse operation.

Track Preferences

Open the **File** menu and choose **Preferences, Tracks** to adjust the initial (default) settings that Terrain Navigator Pro will use for any new tracks that you create using the Track Tool.



Name

The Name is what Terrain Navigator Pro will automatically fill in for the starting text of your track names. Following the name will be a track number that automatically increments as each track is created. You have three choices for the prefix of the track name (that proceed the track number.)

- **Text:**
Lets you assign a standard name prefix in the space at right. When you first start using Terrain Navigator Pro, the default name is set to Text, with "Trk" to be used as the prefix for all new tracks. You can change (or remove) this prefix as you wish. *Example: Trk123*
- **Date:**
Automatically starts each track name with the current date. (Since the date is serving as a prefix, no additional naming is available.) *Example: 10/8/2010: 123*
- **Time:**
Automatically starts each track name with the current time. A 24-hour clock is used. (Since the time is serving as a prefix, no additional naming is available.) *Example: 12:01:58: 123*

Fill/Loop Options

When the track forms a polygon by looping the track's ends together, the Fill Options window lets you specify a color and/or pattern for the interior (or exterior) of the area. To loop a track, right-click on the object and select **Toggle Loop**, or select **Loop End to End** in the Edit Tracks window. A shortcut to the color of the fill pattern is also available here.

Line Options

These settings specify how the track will appear when it is created using the Track Tool. A Preview is shown to indicate how the track will appear when added to the map.

- **Style:** Choose from a variety of dotted, dashed, or solid lines.
- **Width:** Width of the track line.
- **Color:** 16 colors are available for track lines.
- **Highlight:** If you like, you may apply highlighting to your track lines. Choose from nine colors.

GPS/GPX Transfer

These options control how tracks should be received into Terrain Navigator Pro.

- **Prompt to rename track upon receipt from GPS:**
Check this box if you would like to change the names of your tracks before they are received from your GPS into Terrain Navigator Pro. Then, as each track is received, you will be prompted for one of several naming options. This allows you to rename the track, append it to an existing track, or overwrite an existing track with this new track.

Clear this box if you do not wish to rename your tracks as they are imported from the GPS.

- **Combine segments into single track upon receipt/import:**
Garmin GPS units keep their "Active Log" or "Current Track" running all the time. The result is that the track may be broken into several segments as the GPS is turned off or loses its satellite lock. When Terrain Navigator Pro receives such a track from a GPS (or imports it from a .GPX file) it can automatically break these segments into individual tracks - so that they do not connect with each other.

Check this box if you wish to keep the "Active Log" or "Current Track" as one continuous track - combining disconnected segments into a single track.

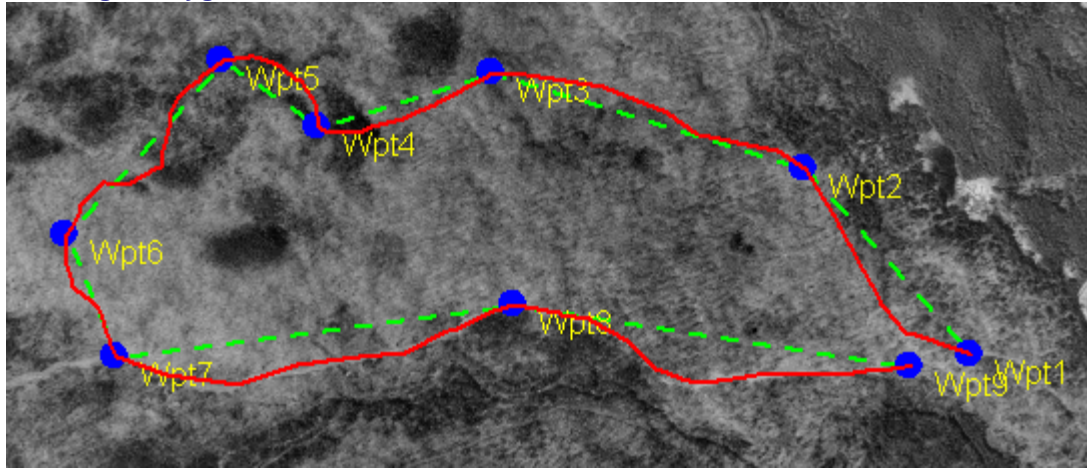
Clear this box to separate the "Active Log" or "Current Track" into individual segments.

Note that this setting only affects future tracks received from the GPS, it can not be retroactively applied against tracks that have already been imported into Terrain Navigator Pro.

Reset Numbering

Tracks are always automatically numbered, to ensure that all track names are unique. If you like, you can **Reset the Numbering** to start again at 1, but keep in mind that this may result in duplicate track names. For example, if you already have a "Trk8," and you reset numbering, you could end up with two tracks that are both named "Trk8." This could cause confusion with certain GPSs (and other systems) that do not allow two or more tracks to share the same name.

Creating a Route from a Track/Distance Line Creating a Polygon from a Track/Distance Line



The easiest way to follow a path of travel with a GPS unit is to create a route. If you have a path, marked by a track or a distance line, and you would like to follow it with your GPS, Terrain Navigator Pro can convert it into a route for you.

With the ability to create a route from a track, you can trace a trail by hand in Terrain Navigator Pro (or transfer a track log from your GPS after a day of hiking), and easily convert the trail into a route that you can use with your GPS, to follow the same trail. A GPS track log can show where you have been, but you need a route in order to follow a trail with a GPS.

This feature is also available to create a polygon from a track or a distance line. In this case, the shape created by the track/distance line will be closed to form an enclosed area. A typical application might be to walk the perimeter of a property with a handheld GPS or the TNP Mobile App and record a track. Then use the convert track to polygon feature to create a polygon that can be further refined.

Notes:

- You can generate as many routes (or polygons) as you like from a single track/distance line.
- The original track/distance line is NOT deleted.
- When creating waypoints/vertices by distance, the final leg may be shorter than requested, unless the total path length happens to be exactly divisible by X feet).

Using the Create Route/Polygon Window

Right-click the track (or distance line) and choose **Create Route** or **Create Polygon**. Several automated methods are available.

New Route Properties

Name:

Create Waypoints

By direction change:

Create waypoints as needed to keep route within of track line

By distance:

Place waypoints:

at least apart (on track line)

exactly

By number:

How many waypoints?

Spaced equally (along the track line)

Spaced as needed for minimal course error

For all points:

Create a waypoint for each track point

The window shown here is for creating a route. The window for creating a polygon is virtually identical and operates in exactly the same way. The only difference is that the terminology is specific to polygons (waypoints vs. vertices) and the result will be a closed figure rather than an unclosed line.

Name

Specify the name you would like the new route (or polygon) to have.

Create Waypoints by Direction Change

Lets you specify the level

of accuracy you require. Terrain Navigator Pro will create as many waypoints/vertices as necessary, at whatever locations work best to keep the route in line with the path, within the bounds you specified.

The smaller the error you allow, the more waypoints Terrain Navigator Pro will create.

Create Waypoints by Distance

At least X feet apart

Wherever possible, the legs of the new route (or edges of the polygon) will be least this long. For straight stretches, waypoints may be placed farther apart.

Exactly X feet apart

Terrain Navigator Pro will place the waypoints/vertices at this regular interval along the track/distance line.

It is important to remember that when calculating the equal spacing intervals, Terrain Navigator Pro is working from the track/distance line. Due to curves in the track/distance line, waypoints may be closer together than the distance you specified. For example: Suppose you request that waypoints be placed exactly 200 feet apart. Terrain Navigator Pro follows your path and places a waypoint every 200 feet. Between two waypoints there is a hairpin turn. When the path is removed from view and only the route is shown, you will see that the two waypoints are closer together than the distance you specified. In such a case, you may wish to create a different route, using a different method (like direction change - see above).

Create Waypoints by Number

Spaced equally

As when creating waypoints by distance, you should keep in mind that Terrain Navigator Pro is gauging distance by the track/distance line, and that the resulting route legs may not be of equal length.

Spaced as needed

Terrain Navigator Pro will place the requested number of waypoints/vertices at whatever locations best follow the path of the track/distance line.

Create Waypoints for All Points

Creates a waypoint/vertex whenever a track point is placed.

Conversion Complete

Name:	Polygon 147	Once the route (or polygon) is created, you will be presented with an information window showing the statistics for the newly created layer. A Delete button is available if you inspect the new route/polygon and discover that it does not meet your satisfaction. Note that the original track line is still available. It will not be deleted if you delete the newly created shape.
Vertices:	8	
Error:	95 feet	
Average Spacing:	897 feet	
Shortest Edge:	400 feet	
Longest Edge:	2042 feet	

The *Error* shown in the finished information window indicates the longest distance between any point on the original track to the line of the resulting route (or edge of the polygon.) If the error is unacceptable, press Delete to remove the new route/polygon, then try creating a new one with different options. In most applications, an error around 50 feet is acceptable - based on the overall accuracy of a handheld GPS and a USGS topographic map.

Tip: Use the Layer Selector to hide the track once you have created a route (or polygon) based on its coordinates.

Labels

Labels



Use Labels to add your own notations and comments to the map.

Click **Tools > Label** or select the Label tool from the toolbar, then click the map location where you'd like to place your label. Type your text in the space provided.

Adjusting Label Size/Shape; Moving a Label



When creating or editing a label, a series of small black squares appear on the label. These serve as "handles" for sizing and moving the label. If the squares aren't visible, select the Label tool and click the label.

To adjust the size or shape of the label, place your cursor over any of the small black squares around the label edge, and drag to stretch or shrink the label.

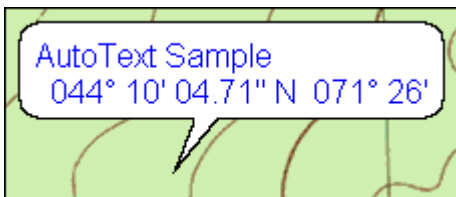
To move a label, drag the small black square in the center. If the central black square isn't visible, click once outside the label. If no black squares are visible, hold the cursor over the center of the label until the cursor changes shape, then click. (Remember, you must use the Label tool in order to move or resize

labels.)

Tip: When using a Balloon border, you can also move the balloon's "tail": hold the cursor over the end and move it to a different location.

Changing Colors, Font and Border

To change anything about a label, right-click it and choose **Edit**. Among other things, you can adjust background color, border style, font style and color. The Label Edit window also lets you insert line breaks into your label text by pressing **Ctrl+Enter**.



Adding AutoText to a Label

The label edit window also provides an AutoText option. This lets you include additional data (elevation, grade, coordinates, etc.) in your label text. AutoText will automatically update itself if the label is moved.

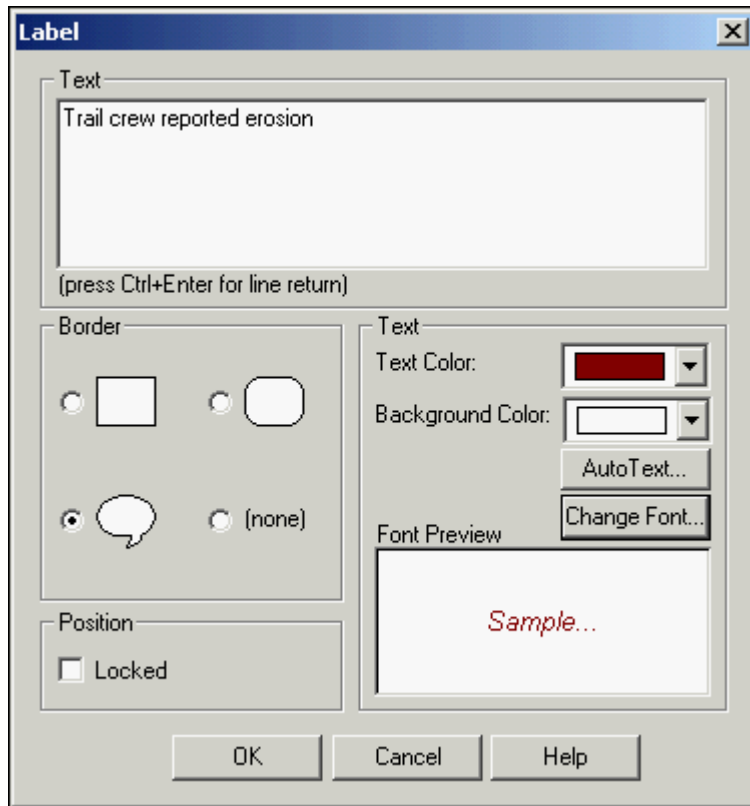
Assigning Default Settings

If you like, you can set preferred default settings for Terrain Navigator Pro to use each time you create a label. Click **File > Preferences > Labels** to assign your specifications.

Including Date or Time in Label Text

Also in Label Preferences, you may set Terrain Navigator Pro to use the Date or Time for the text of your labels. This is similar to the AutoText feature. The reason that Date and Time are offered separately is to allow you to use AutoText in addition to Date or Time. Labels can also be automatically numbered sequentially, see Label Preferences.

Label Edit Window



To edit the properties of a label, right-click the label and choose **Edit**.

Text: Type the text for your label (if you like, click **Ctrl+Enter** to create line breaks/carriage returns).

Border: Select one of three available borders, or choose **(none)** and your text will appear directly on the map image, without a colored background.

Text Color, Background Color: Select from 16 colors. Your choices will be shown in the **Preview** window. (Background color is unavailable if no border is selected.)

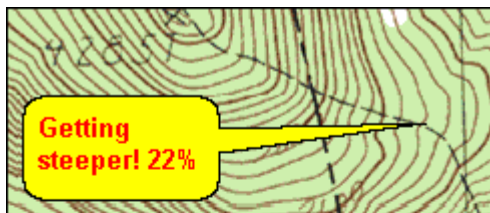
Change Font: Click here to choose a font, specify a font size, and add bold, italics, etc.

Position: Check **Locked** to ensure that the label will not be moved on the map. Unless locked, a label may be moved by clicking and dragging with the Label tool.

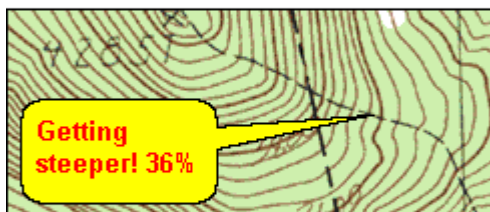
AutoText

The AutoText button lets you include location data in the text of your label. Click **AutoText** and choose to include **Coordinates**, **Street Address**, **Elevation**, or **Grade**. The information will be added to your label text. To add it *before* any existing text, select **Prefix**. To add the AutoText *after* existing label text, select **Suffix**.

AutoText Updates Itself Automatically



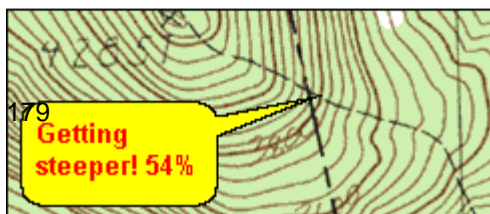
The value you select for AutoText will update itself if the label is moved. For example, if you set AutoText to show grade, then move the label from a hillside to a flat area, the grade figure will change accordingly.



AutoText data refers to the point at the end of the label's "tail." If your label uses a balloon border, the tail is always visible. For any other border types, the tail is only visible when you're creating or editing the label with the Label tool. You can use the label tool cursor to move the end of the tail.

Setting Defaults for AutoText

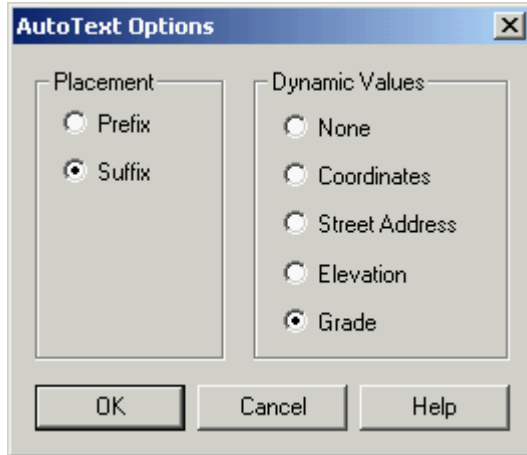
You can set preferred AutoText for Terrain Navigator Pro to use every time a new label is created. To specify your preferred settings, click **File > Preferences > Labels**.



Including Date or Time in Label Text

In Label Preferences, you may set Terrain Navigator Pro to use the date or time for the text of your labels. This is similar to the AutoText feature. The reason that date and time are offered separately is to allow you to use AutoText in addition to date or time.

Label AutoText



The AutoText button lets you include location data in your label. Click **AutoText** and choose to include **Coordinates**, **Street Address**, **Elevation**, or **Grade**. The information will be added to the label text. To add it *before* any existing text, select **Prefix**. To add the AutoText *after* existing label text, select **Suffix**.

Note on Elevation: When using AutoText to show elevation, keep in mind that spot elevations in Terrain Navigator Pro are *approximate*.

AutoText Updates Itself Automatically

AutoText is so called because it will automatically update itself as necessary. For example, if you set AutoText to show grade, and then you move the label from a hillside to a flat

area, the grade figure will change accordingly.

The AutoText data refers to the point at the end of the label's "tail." If your label uses a Balloon border, the tail is always visible. For any other border types, the tail is only visible when you're creating or editing the label with the Label tool. You can use the label tool cursor to move the end of the tail.

Removing AutoText

Right-click on a label and choose **Edit**, then click **AutoText** and select **None**.

Setting Defaults for AutoText

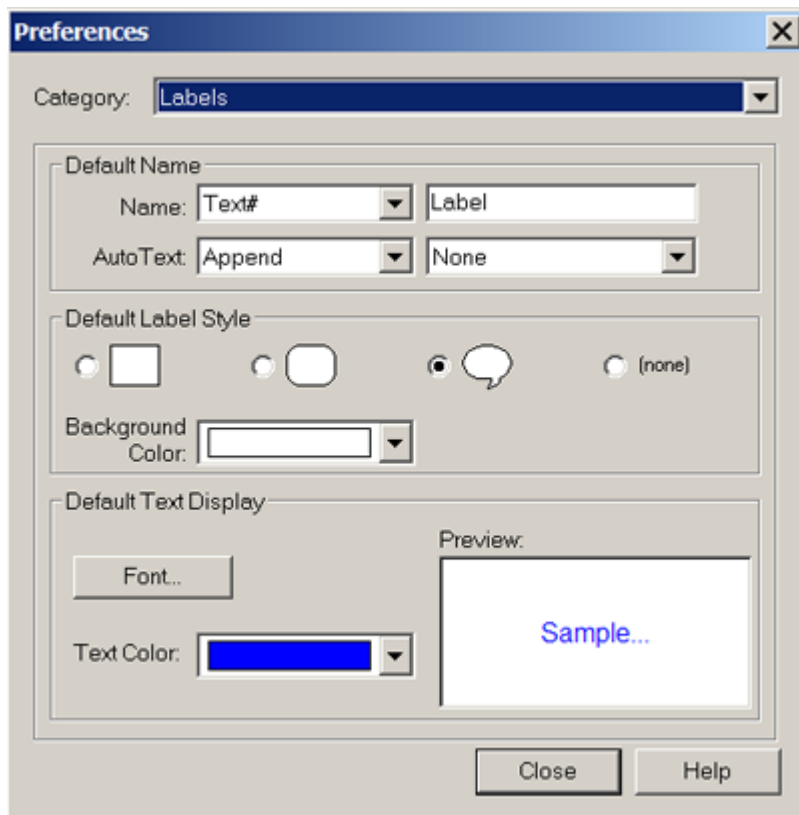
You can set preferred AutoText for Terrain Navigator Pro to use every time you create a label. To specify your preferred settings, click File > Preferences > Labels.

Including Date or Time in Label Text

Also in Label Preferences, you may set Terrain Navigator Pro to use the date or time for the text of your labels. This is similar to the AutoText feature.


Label Preferences

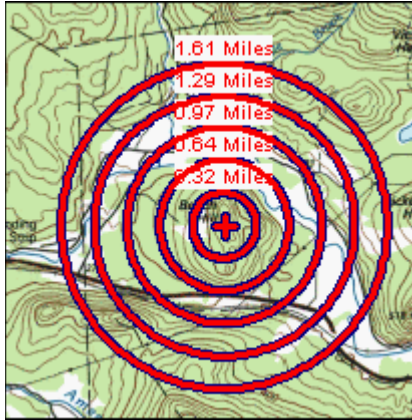
Click **File > Preferences > Labels** to specify preferred font, border and colors to use for your labels. Whenever you add a new label to the map, Terrain Navigator Pro will use the settings you specify here. (You can, of course, change individual labels as you wish.)



Range Rings

Range Rings

Use range rings to indicate all the terrain within a given distance of a central point. Open the **Tools** menu and select **Range Ring** or click the range ring toolbar button  and click the location from which you want to measure.



Grab Rings to Stretch/Shrink; Grab Center Point to Move

You can use the range ring tool to "grab" the rings to expand and shrink them. To move the entire set of rings, grab the center point and drag the rings to a new location.

To lock the rings in place at their current size and location, right-click them and choose **Lock**.

Changing Ring Color, Number

To adjust the number and color of rings and assign spacing intervals, right-click the center point and choose **Edit**.

Centering Range Rings on GPS Position

During realtime GPS Tracking, you can opt to include range rings

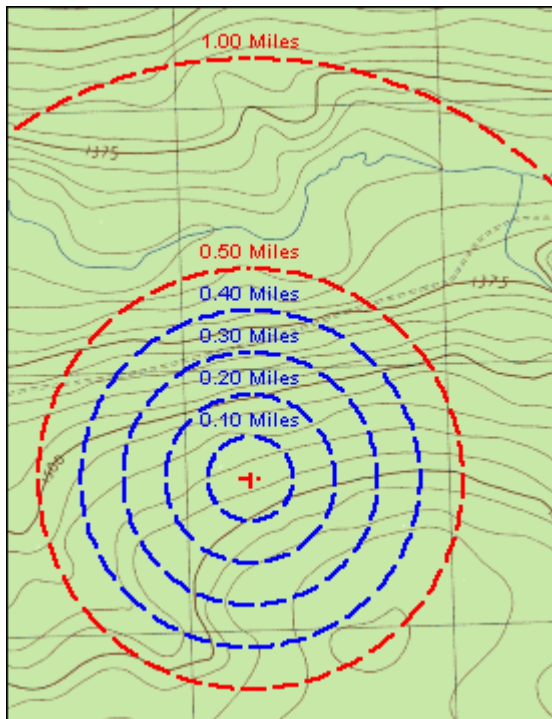
around your GPS position icon.

Stacking Multiple Sets of Rings on Same Center Point

You can create more than one set of range rings on the same point. First, use the centering tool to place the point of interest in the center of the active map window. Then, open the **Layers** menu, select **Range Rings** and click the **New** button. When you use this method to create new range rings, Terrain Navigator Pro automatically centers the rings on the point at the center of the active map window. Simply leave the coordinates as they are, and specify a ring spacing interval, ring color, etc. Each time you click the **New** button you're creating another set of rings at this location.

Alternatively, you can use the Copy/Paste features to accomplish the same task. Create the first range ring, copy it to the clipboard using the **Tools** menu, then **Paste** it. The two range rings will now overlap. Right click on the center point of the rings and choose **Edit**. Adjust the spacing and other parameters of one of the rings.

Tip: Use different colors to help distinguish between sets of rings.



Finding a Range Ring

To bring up the map containing a range ring you've created, open the **Find** menu, choose **Range Ring** and highlight the name of the range ring you want to see. The map containing the range ring will appear

on the screen, centered on the ring's center point. Alternatively, in the Range Ring edit window, select the ring you wish to see and press Find.

Temporarily Hiding a Range Ring from View

With the Range Ring tool, right-click on any ring (or the center point) and choose **Hide**. The entire range ring will be temporarily removed from the map image. To restore it to view, open the **View** menu, select **Layer Size/Visibility** and locate the desired Range Ring in the list of sublayers. Or, you can open the **Find** menu, choose **Range Ring**, and select the ring's name. You can also use the Toggle Layers button to toggle all layers on and off at once.

Deleting a Range Ring

To delete a range ring, right-click on any of its rings (or the center point) and choose **Delete Range Ring**. You can also delete range rings using the Edit Range Rings window or pressing the Delete button.

Creating a Route or Track from a Range Ring

Right click on the ring and choose **Create (from outer ring)**. Select route or track and a new route (or track) will be created along the edge of the outmost ring of the range ring.

New Range Ring

Range Ring Properties

Name:

Ring Color: Lock Position

Line Style: Display Name

Line Width: Display Ring Interval

No. of Rings:

Notes:

Center Point of Range Ring

ON GPS POSITION

ON POSITION:

Latitude:

Longitude:

Ring Spacing

SET BY DISTANCE: SET BY TIME:

Draw a ring every from center.

Show distance traveled if traveling at this speed:

To create a range ring by specifying its center point coordinates, or to add rings around your GPS position during real-time GPS tracking, open the **Layers** menu, choose **Range Rings** and click the **New** button.

Once you have completed setting the various range ring options described below, press **OK** to create the new range ring, or press **Cancel** to exit this window without creating a new range ring.

Range Ring Properties

Name:

Enter the name you would like to give this new range ring.

Ring Color:

Sixteen colors are available for your new range ring.

Line Style:

In addition to solid lines, various dashed line options are available.


Line Width:


Adjust line thickness to best emphasize range rings on the map image.

Number of Rings:

Indicate the number of concentric rings you wish to create.

Lock Position:

Check here to lock this set of range rings in place on the map. Unless **Lock Position** is checked, range rings may be moved by clicking on the center point when the Range Ring tool  is selected.

place on the map. Unless **Lock Position** is checked, range rings may be moved by clicking on the center point when the Range Ring tool  is selected.

Display Name:

If checked, the name of your range ring will be displayed at the center point.

Display Ring Interval:

Check here to include text at each ring, noting the distance from center point. The interval will appear at the northernmost portion of each ring.

Notes:

Space is provided for you to record notes or comments about this range ring.

Center Point of Range Ring

Center on GPS Position:

If your GPS is connected, you can opt to center range rings on your GPS position. This is especially useful during realtime GPS tracking, to help you gauge distance and required travel time.

Center on coordinates:

Type the coordinates around which you want to center the rings. To change your coordinate format, open the **File** menu and choose **Preferences, Coordinates**. (The coordinates that appear here when the New Range Ring window is first opened are the coordinates of the point at the center of the active map window. You may of course change the coordinates as you wish.)

You can also specify an existing marker to use as the center point of the new range ring. Click the down arrow to the right of *Center of Screen* to pick from the markers that you have previously created.

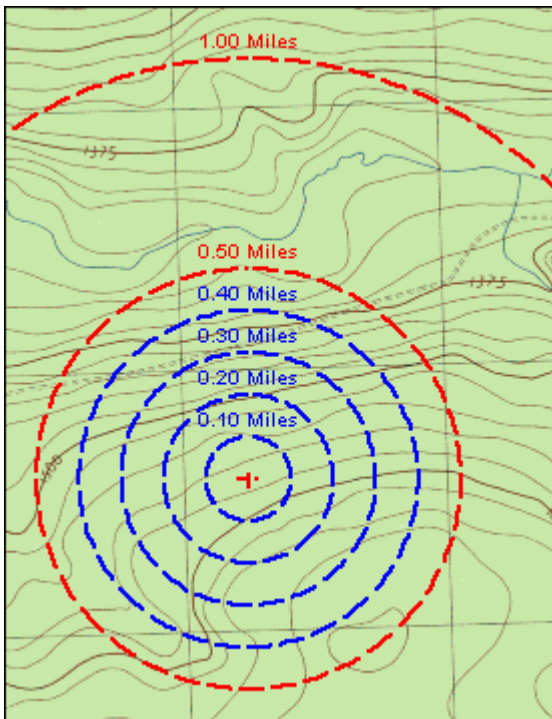
Ring Spacing**Set by Distance:**

Specify how far apart the rings should be. For example, suppose you want to find the closest body of water to a given location. You could set range rings every quarter-mile and compare the locations of ponds, lakes, etc. to see which are closest to the center point.

Set by Time:

This is useful for predicting progress at different speeds. Type a speed, and specify a time increment. For example, you might choose "show distance traveled every 15 minutes at 45 mph" to anticipate your progress and plan stopping points.

If you have chosen to **Center on GPS Position**, the **Speed** figure will be your actual speed, updated as necessary when you speed up or slow down. This way, when you slow down, the range rings will move closer together, since you won't travel as far at the slower pace. When you speed up, the rings will expand, because you'll be able to cover more ground if you sustain a higher speed.

**Sharing a Center Point**

As mentioned above, when you first open the New Range Ring window, Terrain Navigator Pro automatically centers the new range rings on the location at the center of the active map window. This makes it easy to create more than one set of range rings on the same point.

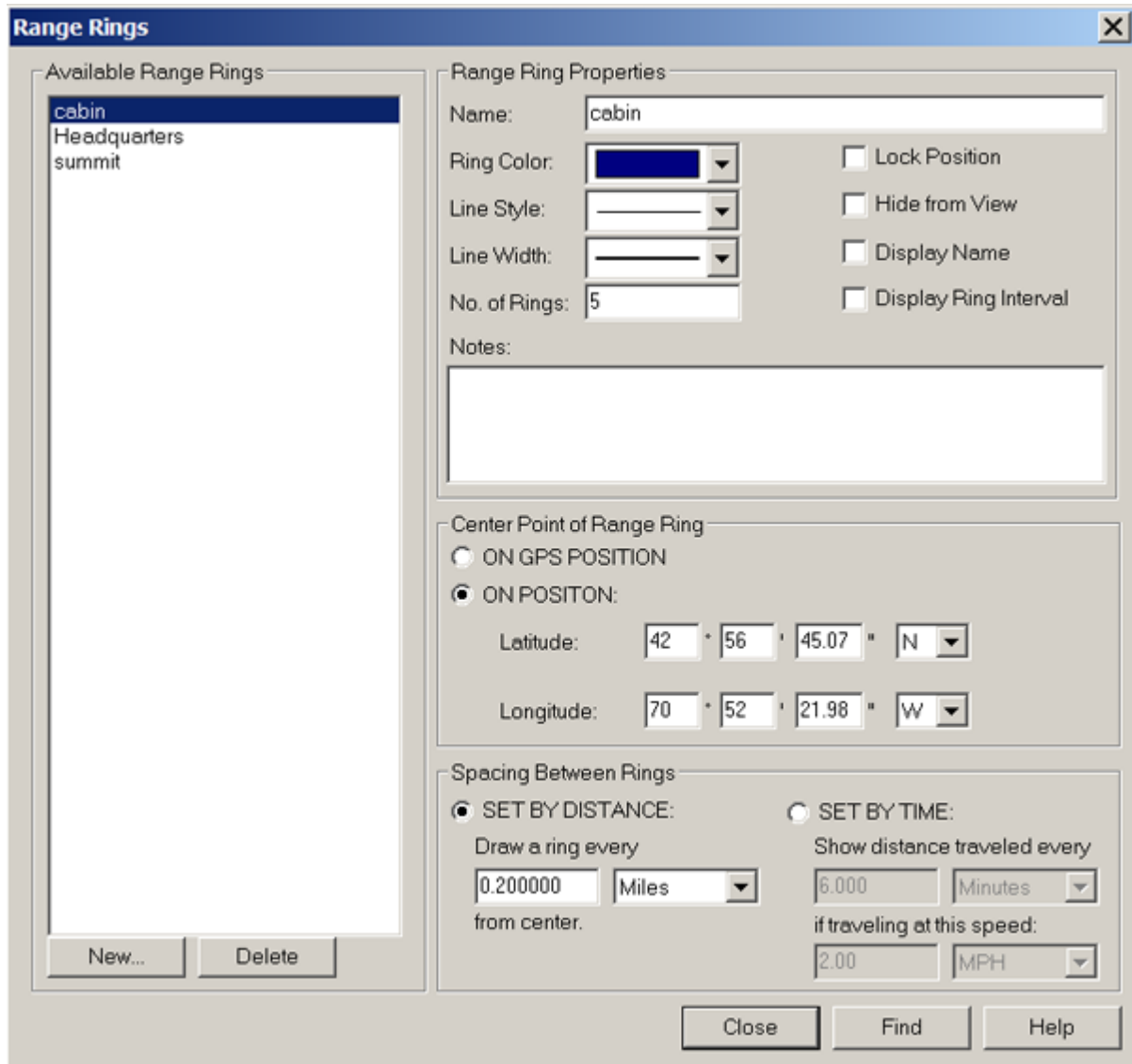
First, use the Centering Tool to place the point of interest in the center of the active map window. Then, open the **Layers** menu, choose **Range Rings** and click the **New** button. Simply leave the coordinates as they are, and adjust all other settings as you like. Each time you click the **New** button you're creating another set of rings at this location.

Alternatively, place a marker at the desired center point. Then use the drop down arrow in the New Range Ring window to change the center point from *Center of Screen* to an existing marker.

Tip: Use different colors to help distinguish between rings.

Edit Range Rings

To see a list of all your range rings and to edit ring's characteristics, open the **Layers** menu and choose **Range Rings**.



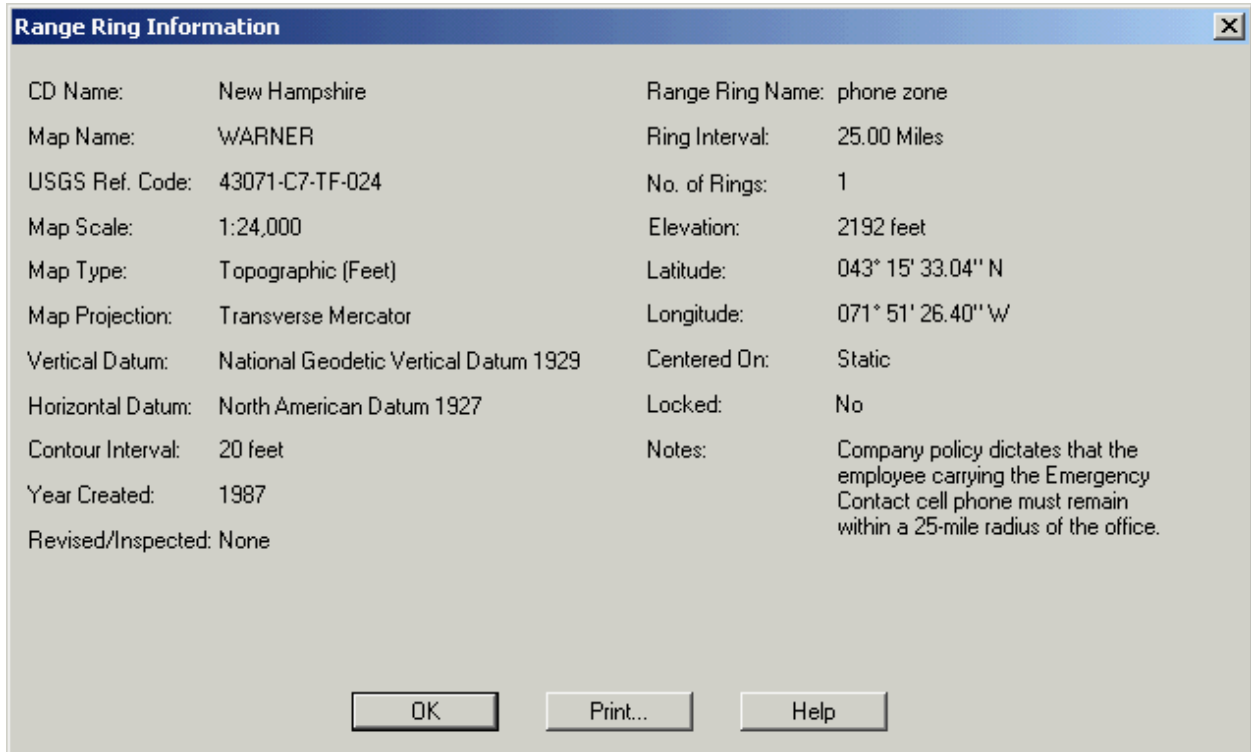
Range Ring Preferences

Click **File > Preferences > Range Rings** to adjust the settings that Terrain Navigator Pro will use for all new range rings that you create. (These are your *preferred* settings; you can of course edit your range rings to change specific rings' settings whenever you like.)



Range Ring Information

To get specific information about a range ring and the map that contains it, right-click on a range ring and choose **Information**.

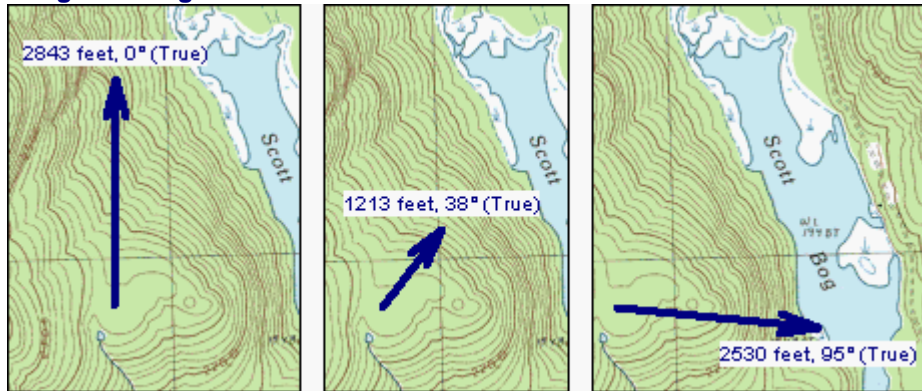


The left side of the window displays information on the map containing the range ring.


The right side of the window provides information on the selected range ring.

Range/Bearing Lines

Range/Bearing Lines



Use the range/bearing tool to find a straight-line distance (range) and bearing between any two points.

Select the range/bearing tool  from the toolbar or open the **Tools** menu, choose **Range/Bearing Line**, and click the map to set a start point. A line, in the shape of an arrow, will appear on the map. The range/bearing line starts at the point where you clicked.

Use Cursor to Move Start and/or End Points

With the range/bearing tool selected, use the cursor to drag the start and end points as you wish. The range and bearing figures are shown at the end of the line. These figures update themselves as either point is moved.

Specifying Range/Bearing Figures (Instead of Dragging Points)

If you prefer, you may type specific range and bearing figures: right-click on the range/bearing line and choose **Edit**.

Calculating End Point as Function of Time/Speed

The Edit window also provides different options for calculating the end as a function of time and speed—for example, to predict your progress over the terrain at a given speed.

Changing Line Color and Width

Right-click the range/bearing line and choose **Edit**. Among other things, you may change line color, style, and width.


Changing Default Settings

To change default settings for all new range/bearing lines, open the **File** menu and choose **Preferences, Range/Bearing Lines**. Specify line color/style/width settings, and also change the initial range/bearing. Terrain Navigator Pro will use your preferences for all new range/bearing lines you create.

Getting Details about a Range/Bearing Line


Right-click the line and choose **Information** to get specific data about a range/bearing line and the map that contains it.

Moving an Entire Range/Bearing Line

With the range/bearing tool  selected, place the cursor over a range/bearing line anywhere between the start and end points. Drag the line to another location.

Temporarily Hiding a Range/Bearing Line from View

You can hide ALL your layers by opening the **View** menu and unchecking **Show Layers**. Recheck to


restore layers to view. You can also use the Toggle Layers button  to toggle all layers on and off at once. If you just want to hide an individual range/bearing line, right-click the line and choose **Hide**. To restore it to view, open the **View** menu and choose **Layer Size/Visibility** and select the desired Range/Bearing sublayer. Or, you can open the **Find** menu, choose **Range/Bearing Line** and select the line's name.

Finding a Range/Bearing Line

To bring up the map containing a range ring you've created, click **Find** menu, choose **Range/Bearing Line** and highlight the name of the RBL you want to see. The map containing the range/bearing line will appear on the screen.

Deleting a Range/Bearing Line

To delete a range/bearing line, right-click on it and choose **Delete Range/Bearing Line**. You can also

delete range/bearing lines using the Edit Range/Bearing Lines window or pressing the Delete button .

Creating a Range/Bearing Line from an existing Route Leg

You can right click on any route leg and choose **Create, Range/Bearing Line**. This will automatically make a new RBL along that route leg. You can also press the **Create RBL** button in the Edit Route Waypoints window.

New Range/Bearing Line

Range/Bearing Line Properties

Name:

Line Color: Lock Movement

Line Style: Display Name

Line Width: Display Dist. & Bearing

Notes:

Start Point of RBL

AT GPS POSITION

AT POSITION:

Latitude: °

Longitude: °

End Point of RBL

Set:

Range:

Bearing: ° T

To create a new range/bearing line (RBL), open the **Layers** menu, choose **Range/Bearing Line**, and press **New**. Range/Bearing lines can be created in a number of different ways, including linking to live GPS positions, using time calculations, from existing markers, or in various combinations.

Once you have completed setting the various range ring options described below, press **OK** to create the new range ring, or press **Cancel** to exit this window without creating a new range ring.

Range/Bearing Line Properties

Name:

Enter the name you would like to give this new range/bearing line.

Line Color:

Sixteen colors are available for your new range/bearing line.

Line Style:

In addition to solid lines, various dashed line options are available.

Line Width:

Adjust line thickness to best emphasize range rings on the map image.

Lock Position:

Check here to lock this range/bearing line in place on the map. Unless **Lock Position** is checked, range/bearing line may be moved by clicking and dragging the middle of the bearing

line while the Range/Bearing tool  is selected.

Display Name:

If checked, the name of your range ring will be displayed at the center point.

Display Distance & Bearing:

Check here to include these figures next to the End point. (These figures will update themselves as necessary if either point is moved.)

Notes:

Space is provided for you to record comments about this measurement and location.

Start Point of RBL

Start at GPS Position:

If your GPS is connected, you can opt to start the range/bearing line at your GPS position. This is

especially useful during realtime GPS tracking, to help you gauge distance and required travel time in relationship to a fixed object.

Start at Coordinates:

Type the coordinates for the origin of the range/bearing line. To change your coordinate format, open the **File** menu and choose **Preferences, Coordinates**. (The coordinates that appear here when the New Range/Bearing Line window is first opened are the coordinates of the point at the center of the active map window. You may of course change the coordinates as you wish.)

You can also specify an existing marker to use as the start point of the new range/bearing line. Click the down arrow to the right of *Center of Screen* to pick from the markers that you have previously created.

End Point of RBL

You have several options for setting your line's End point. Select an option based on what values you want to supply:

End Coordinates

If you know the coordinates where you want to set your End point, type them here. For example, suppose you have the coordinates for a location of interest, and you want to know where you are in relation to that location. Use your present location for the Start point and type the coordinates of your point of interest under End point. Then, right-click on the range/bearing line and choose Information. This will give you your distance to the location, and what direction to head in.

You can also specify an existing marker to use as the end point of the new range/bearing line. Click the down arrow to the right of *Center of Screen* to pick from the markers that you have previously created.

Range and Bearing

By specifying range and bearing for the End point, you can pinpoint locations. For example, if you want to know what the terrain is like five miles southeast of your present location, specify 5 miles for Range and 225 degrees Bearing (True), then pan the map and inspect the area surrounding the End point.

Using this method, you also have the option of getting the Bearing figure directly from a connected GPS unit. Choose **Range (Bearing from GPS)**, and the end point will be placed at the range you specify, and at the bearing in which you're currently traveling. (Note: You must be moving in order for the GPS to supply a bearing.)

Time, Speed and Bearing

This method is useful for predicting your progress if you traveled in a constant direction for a specific amount of time. For example, to find out where you would end up if you were to travel at a 2.7 mph at a bearing of 149 degrees for two and a half hours, just fill in the blanks. The resulting range/bearing line will not only show you where you would end up, but also tell you how far you would have traveled to get there.

If you're doing realtime GPS Tracking, you may opt to use the **Speed from GPS** and/or **Bearing from GPS**.

Edit Range/Bearing Lines

To see a list of all your range/bearing lines, and to edit specific ones, click **Layers > Range/Bearing Lines**. (You can also right-click on a range/bearing line and choose **Edit**.)

Range/Bearing Lines [X]

Available Range/Bearing Lines

- Created: Fri Jul 28 08:35:24 2006
- Created: Fri Jul 26 08:35:27 2006
- Created: Wed Aug 09 11:39:34 2006
- Created: Wed Aug 09 11:39:35 2006

New... Delete

Range/Bearing Line Properties

Name: Created: Fri Jul 28 08:35:24 2006

Line Color: [Blue] Lock Position

Line Style: [Solid] Hide from View

Line Width: [Medium] Display Name

Display Dist. & Bearing

Notes:

Start Point of RBL

AT GPS POSITION

AT POSITION:

Latitude: 44 * 8 * 16.29 * N

Longitude: 71 * 24 * 43.16 * W

End Point of RBL

Set: End Coordinates

Latitude: 44 * 8 * 53.13 * N

Longitude: 71 * 23 * 51.81 * W

Close Find Start Find End Help

Range/Bearing Line Information

To view information about a range/bearing line and the map containing it, right-click it and choose **Information**.

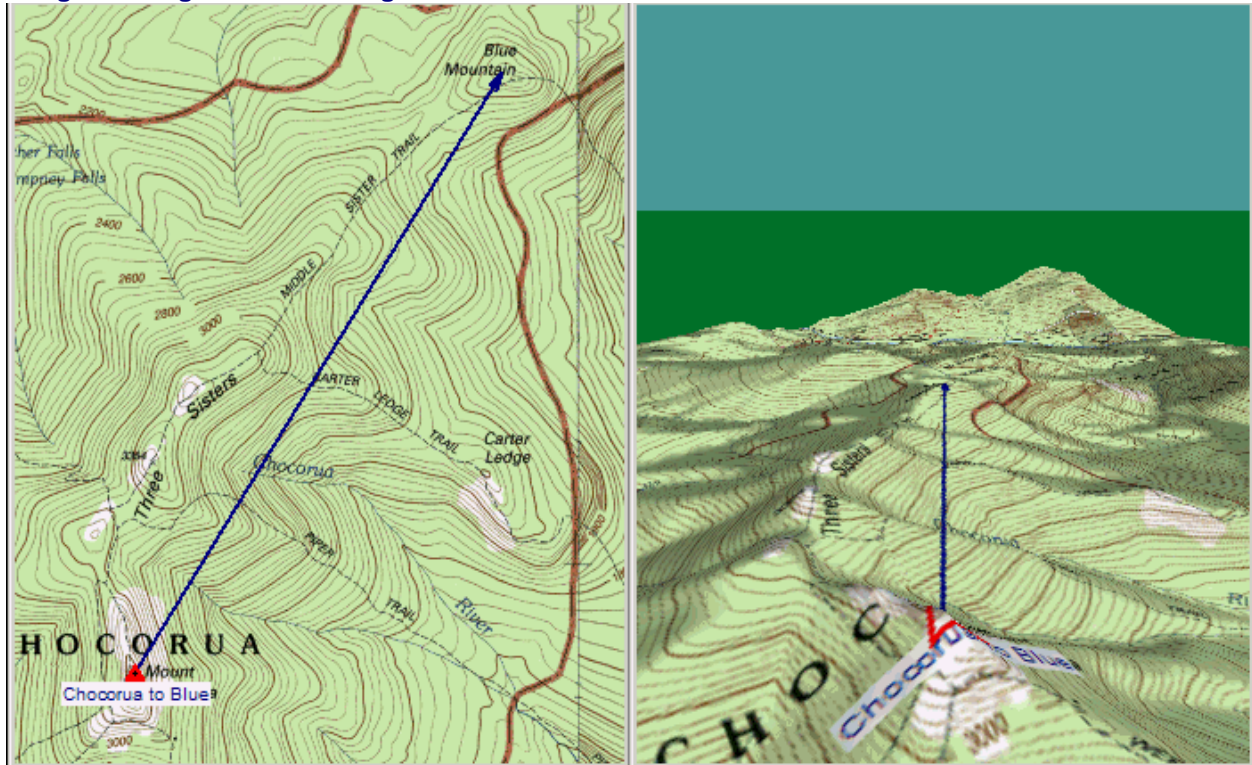
CD Name:	New Hampshire (3.0)	RBL Name:	Chocorua summit to Camp
Map Name:	MT CHOCORUA	Range:	12.750000 Mile(s)
USGS Ref. Code:	43071-H3-TF-024	Bearing:	146.00° (True)
Map Scale:	1:24,000	Back Bearing:	326.00° (True)
Map Type:	Topographic (Feet)	Start Elevation:	3463 feet
Map Projection:	Transverse Mercator	Start Latitude:	043° 57' 15.75" N
Vertical Datum:	National Geodetic Vertical Datum 1929	Start Longitude:	071° 16' 25.95" W
Horizontal Datum:	North American Datum 1927	End Elevation:	420 feet
Contour Interval:	40 feet	End Latitude:	043° 48' 04.68" N
Year Created:	1995	End Longitude:	071° 07' 51.28" W
Revised/Inspected:	None	Locked:	No
		Notes:	Scan eastern shore just beyond point for mirror signal

OK Print... Help

The left side of the window displays information on the map containing the range/bearing line.

The right side of the window provides information on the selected range/bearing line.

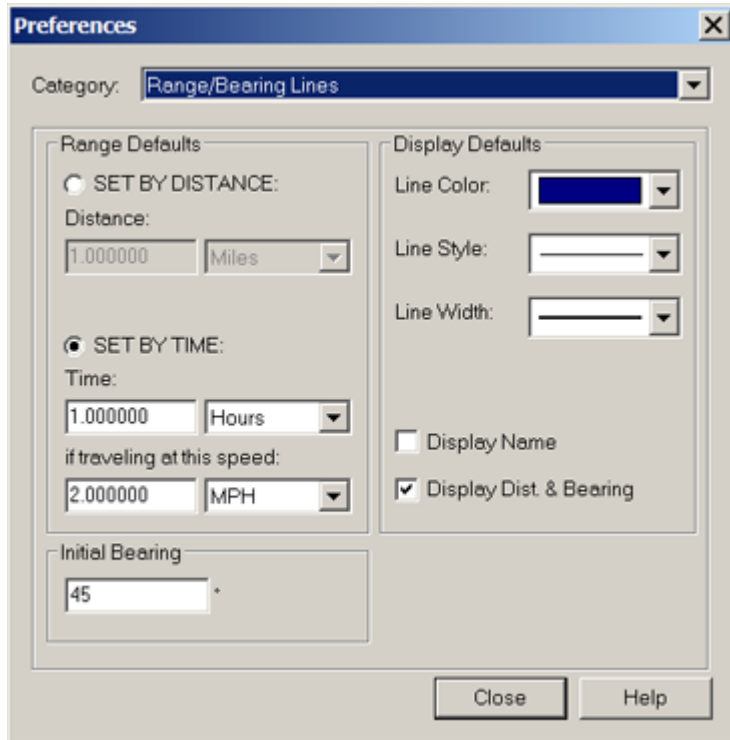
Range/Bearing Lines: Viewing in 3-D



To view a range/bearing line in 3-D, right-click the range/bearing line and choose **View in 3-D**. Terrain Navigator Pro will split the screen with a 3-D view automatically aligned to show the view from the start point to the end point.

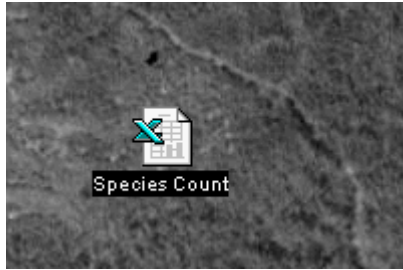
Range/Bearing Line Preferences

Click **File > Preferences > Range/Bearing Lines** to adjust the default settings that Terrain Navigator Pro will use for any new range/bearing lines you create. (You can always adjust individual lines as you wish - the specifications below are simply the initial settings that Terrain Navigator Pro will use for all new range/bearing lines that you create.)



GeoPins

GeoPins




Add GeoPins to your maps to serve as links to other files, websites, or images. For example, place a GeoPin at a trailhead to link to a Word document with a trail description. Use another GeoPin to attach a link to a website with local weather reports for the area you marked. A real estate agent might use various GeoPins to attach house descriptions and photos to particular neighborhoods.

GeoPins use the Windows-designed file icons you're already familiar with. Double-click on a GeoPin icon to open the linked document or file.



Creating GeoPins

There are two ways to create a GeoPin.

- **Drag and Drop:**
A quick way to create a GeoPin is to drag a file icon from another window and "drop" it directly onto the map image. In other words, open a window (such as *Documents*, or *Computer*) on your Windows desktop that shows the directory of the photo files. Then also open Terrain Navigator Pro. Position Terrain Navigator Pro such that both windows are accessible. Open a topographic map in Terrain Navigator Pro. Now click on the photo file, drag it to the topographic map, and release the mouse button.
- **Browse to Target File:**
Use the GeoPin tool  to click a map location (either select the GeoPin button from the toolbar, or right-click the map and choose **Tool > GeoPin**). When you click the map, the new GeoPin window will open: use the **Browse** button to locate the file to attach to this location.

Editing GeoPins

You can rename a GeoPin, add notes about it, link it to a different document, etc. Right-click the GeoPin and choose **Edit**, or open the **Layers** menu, select **GeoPins** and highlight a GeoPin in the list to edit its characteristics.


Getting Details about a GeoPin

Right-click the line and choose **Information** to get specific data about a range/bearing line and the map that contains it.

Moving a GeoPin

With the GeoPin tool  selected, place the cursor over its icon and drag it to another location.

Temporarily Hiding a GeoPin from View

You can hide ALL your layers by opening the **View** menu and unchecking **Show Layers**. Recheck to restore all layers to view. You can also use the Toggle Layers button  to toggle all layers on and off at once. If you just want to hide an individual GeoPin, right-click its icon and choose **Hide**. To restore it to view, open the **View** menu, choose **Layer Visibility** and select the desired GeoPin sublayer. Or, you can open the **Find** menu, choose **GeoPin** and select the pin's name.

Finding a GeoPin

To bring up the map containing a GeoPin you've created, open the **Find** menu, choose **GeoPin** and highlight the name of the GeoPin you want to see. The map containing the GeoPin line will appear on the screen.

Deleting a GeoPin

To delete a GeoPin, right-click on it and choose **Delete GeoPin**. You can also delete GeoPins using the Edit GeoPins window or pressing the Delete button .

Downloading GeoPin Media from the TNP Mobile App

The TNP Mobile App (available for iPhone and Android devices) includes the ability to take photos, videos, and audio clips and attach them as GeoPins for automatic synchronization to the desktop PC. To copy these media clips from the cloud servers so that they will be available in the event the Internet connection is disabled or unavailable, open the **File** menu and choose **Copy GeoPin Media to Hard Drive**.

Embedding GeoPins into Projects and Project Archives

As described above, GeoPins are *links* to documents, web pages, etc. The files the GeoPins are linked to remain in their original location on the computer. This allows changes made to those files to also be reflected in Terrain Navigator Pro when they are opened on the map. However, this also means that if the file is deleted or moved, Terrain Navigator Pro will no longer be able to find that link to open the file. Likewise, if the project is archived for backup purposes (or for sharing with another computer running Terrain Navigator Pro) the files linked from each GeoPin will not be transferred.

If you would like to include copies of the files that each GeoPin is linked to within the project, open the **Layers** menu, choose **Manage Projects**, and check **Embed GeoPin Media**. Note that this only applies to the active project; check the **Embed GeoPin Media** option for each project that you wish to save copies of GeoPins into. This will allow files to be deleted outside of Terrain Navigator Pro without affecting their use within Terrain Navigator Pro. Moreover, files linked from GeoPins will be included in any Terrain Project Archives created by exporting or backing up projects.

New GeoPin

Use GeoPins to link map locations to external documents, like spreadsheets, websites, reports, etc.

Creating GeoPins


There are two ways to create a GeoPin.

- **Drag and Drop:**

A quick way to create a GeoPin is to drag a file icon from another window and "drop" it directly onto the map image. In other words, open a window (such as *Documents*, or *Computer*) on your Windows desktop that shows the directory of the photo files. Then also open Terrain Navigator Pro. Position Terrain Navigator Pro such that both windows are accessible. Open a topographic map in Terrain Navigator Pro. Now click on the photo file, drag it

to the topographic map, and release the mouse button.

- **Browse to Target File:**

Use the GeoPin tool  to click a map location (either select the GeoPin button from the toolbar, or right-click the map and choose **Tool > GeoPin**). When you click the map, the new GeoPin window (shown here) will open: use the **Browse** button to locate the file to attach to this location.

You can also browse to a target file by opening the **Layers** menu, choosing **GeoPins** and pressing **New**.

GeoPin Properties

Name:

Assign a name for this GeoPin. This name may be included on the map display.

Target:

The file to which this GeoPin is linked. Double-clicking on a GeoPin on the map will open the linked file. Click **Browse** to specify a file.

Display Name:

Check here to include the GeoPin Name on the map image (beneath the icon).

Lock Position:

Locks the GeoPin symbol in place on the map, so that it cannot be accidentally moved. (Unless locked, a GeoPin may be dragged to a new location.)

Notes:

Space is provided for you to record comments about this map location and attached file.

Position:

The location marked by this GeoPin.

Edit GeoPins

Use GeoPins to link map locations to external documents, like spreadsheets, websites, reports, etc. To edit a GeoPin, right-click it and choose **Edit**, or open the **Layers** menu, choose **GeoPins** and select a GeoPin from the list.

Available GeoPins

Highlight a GeoPin in the list of Available GeoPins to change its characteristics.

Press the **New** button to create a new GeoPin and add it to the list of available GeoPins.

Press the **Delete** button to remove this GeoPin from the list of available GeoPins.

Hold the **shift** key when clicking this Delete button to delete all GeoPins. Note that the target file this GeoPin is linked to will not be deleted. However, if GeoPins are embedded in this project, their embedded copies will be deleted.

GeoPin Properties

Once a GeoPin has been chosen from the list of Available GeoPins, its characteristics can be changed.

Name:

Replace the default name with a name of your own.

Display Name:

Check here to include the GeoPin's name on the map image (beneath the symbol).


Font:

Choose a font style/size, and a color for the GeoPin's name if displayed on the map. If you'd like your GeoPin names to appear on an opaque background, you may also specify a background color for the GeoPin label.

Target:

The file or web site to which this GeoPin is linked. Double-clicking on a GeoPin on the map will open the linked file. Click **Browse** to specify a different file.

Position:

The coordinates of the highlighted GeoPin. Adjusting these coordinates will change the position of the GeoPin's icon on the map. You can also move GeoPins by clicking-and-dragging them, when the GeoPin tool  is selected. Note: If the target file contains coordinate information (such as a JPEG with EXIF data) adjusting the position of the GeoPin will override the position contained in the target file.

Lock Position:

Check here to lock this GeoPin in place on the map - preventing accidental movement with the GeoPin tool. (To unlock it, uncheck this box or right-click on the GeoPin itself and choose **Unlock**.)

Hide From View:

Check here to hide this GeoPin (including both the GeoPin name and icon) from view on the map. (To view it again, uncheck this box or use the Layer Size/Visibility window.)

Notes:

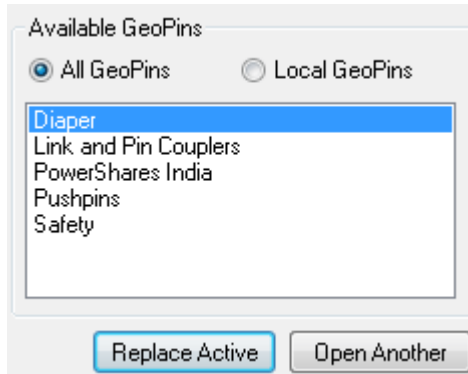
Space is provided to record miscellaneous comments about this GeoPin and its location.

Exiting the Edit GeoPins Window

Click **Find** to close this window and open the map display to the location of the selected GeoPin.

Click **Close** to exit this window, without changing the map display.

Find GeoPin



Open the **Find** menu and choose **GeoPin** to locate any GeoPin and view its location on the map.

Local GeoPins/All GeoPins

To narrow down the list and show only the GeoPins on the map you're viewing, click **Local GeoPins**. Click **All GeoPins** to list all GeoPins in this project.

Opening the Map that Contains the GeoPin

Press **Open** to display the GeoPin on the map at the best available scale (usually 1:24,000 topographic.) Or, double-click on GeoPin's name in the list of available GeoPins.

Replace Active/Open Another

If you already have one map window open, you'll have these two buttons to choose from. **Open Another** will present your GeoPin in a second map window. **Replace Active** will close whatever map you had been viewing, and show the GeoPin in that window instead.

If you do not click either of these buttons, and instead double-click on the GeoPin name, it will be displayed in the active window.

Replace Active/Replace Inactive

If you already have your maximum of two map windows open, you can choose to show your GeoPin in the **Active** window or the **Inactive** window. The *active* window is the map window that you last worked with, and can be recognized by its highlighted title bar (at the top of the window). The other window is *inactive*.

If you do not click either of these buttons, and instead double-click on the GeoPin name, it will be displayed in the active window (whatever window you were last using).

GeoPin Placement (Files with Time Data)

Terrain Navigator Pro lets you drag-and-drop files onto the map image, where they will appear as GeoPins. If the file(s) have a time/date stamp, and if you have a GPS track recorded during the same time frame, you can drop them directly onto the track. For example: If you go on a hike and record your progress as a GPS track log, and use your digital camera to take photos along the way, you can upload the track log and the photos to Terrain Navigator Pro. The photos can be placed as GeoPins along the track line, at the locations where they were taken.

Place at point clicked: Terrain Navigator Pro will create a GeoPin at the location you clicked on the track line. (If you're dropping multiple files, they will all be stacked at this location; use the drag tool to separate them.)

Place at matching time on track: As long as the file's time stamp is within the time bracket when the track was recorded, the file will be placed on the portion of the track that was recorded at the same time the file was created. (If no track point matches the file time exactly, the file is placed in relation to the closest match.) **Note:** This option will not be available if the file's time/date stamp does not fall within the time frame of the track.

Place earliest file at point clicked, position subsequent files at relative time intervals along the track: Suppose you took your first picture at a stream crossing ten minutes into a hike. You can highlight all your hike photos, then click the track line at the stream crossing. Your first photo will be attached to that portion of the track, and all remaining photos will be placed in relation to that first photo.

Using this feature in this way ensures that all the photos will line up accurately with the locations they were taken. However, if you choose to start the file sequence farther down the track line, be aware that your later files may not fit onto the track line. For example, if you place your stream crossing photo at a point ten minutes farther into the hike, all the other photos will be shifted accordingly. This means that any photos taken during the final ten minutes of your hike won't appear on the track line.

Spread all files evenly along the track: Your files will be placed along the track in sequential order, at regular distance intervals. The earliest file will be placed at the first track point, and the latest file will be placed at the last track point. This ensures that all your files will be attached to the track line, and that they will all be visible.

Moving GeoPins as a Group

If you drag-and-drop multiple files at once, you'll be able to move them all as a group. Drag any file up or down the track line, and all the other files will move as well, retaining their relative positions on the line. You can continue to make these group adjustments until you close Terrain Navigator Pro. Once the program is closed, the GeoPins are fixed in place and if you want to move them again, you will need to move each one individually.

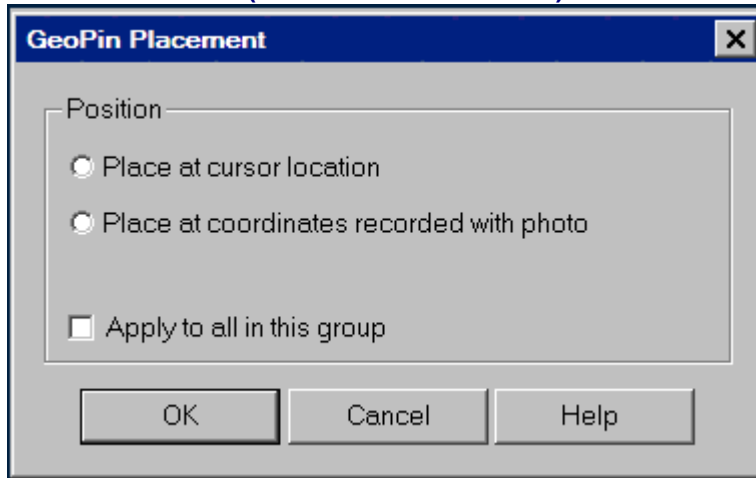
Notes:

Use of this feature can create an impressive map display, but for successful GeoPin placement, there are several requirements:

- Your camera must be set to the proper date and time. Otherwise, the photographs you take will bear an incorrect time/date stamp, and will not match up to the track line. Be sure to remember to adjust your camera for Daylight Savings Time.
- Your GPS must be capable of recording a track log with a time/date stamp.
- Even these compatible GPS models might have further restrictions to keep in mind. For example, tracks stored in GPS memory may lose their time data. Garmin units have slot-based track storage, allowing you to store a set number of tracks in memory, but time data is not preserved

for these stored tracks. In these models, it is only the active track that contains time data. Research your GPS unit's behavior, or experiment with uploading active and stored tracks to Terrain Navigator Pro, to determine how time data is handled in your GPS unit. To check whether a track on the map has time data, right-click the track and choose **Information**.

GeoPin Placement (Files with Position Data)



This window appears when you take a file that has position data attached to it and drag-and-drop the file onto the map image. Such files include photos taken by a digital camera with a GPS hookup or a "smartphone" when position data saving is enabled. For these photos, position data is typically included in a portion of the file known as the "EXIF" header.


Place at cursor location: Terrain Navigator Pro will place the GeoPin(s) at the point where you dropped the file(s) on the map image, instead of placing the GeoPin at the location recorded in the

file.

Place at coordinates recorded with photo: The GeoPin(s) will be placed at the coordinates indicated in the file(s). When you select this option, all you have to do is drag the file anywhere onto the screen, and Terrain Navigator Pro will automatically position it at the location indicated within the file.

Apply to all in this group: If you are dragging multiple files at once, check this box to place all the GeoPins according to the method selected above.

GeoPin Information

To get specific information about a GeoPin and the map that contains it, right-click on the GeoPin and choose **Information** or use the Information Tool .

The right side of the window gives you information about the GeoPin and its attached file. The left side of the window gives information about the map.

CD Name:	New Hampshire (3.0)	GeoPin Name:	Amundsen bird count
Map Name:	SILVER LAKE	Target:	bird_count.xls
USGS Ref. Code:	43071-H2-TF-024	Document Type:	Microsoft Excel Worksheet
Map Scale:	1:24,000	Elevation:	1612 feet
Map Type:	Topographic (Feet)	Latitude:	043° 57' 38.02" N
Map Projection:	Transverse Mercator	Longitude:	071° 14' 25.65" W
Vertical Datum:	National Geodetic Vertical Datum 1929	Locked:	No
Horizontal Datum:	North American Datum 1927	Notes:	84 deg., humid and hazy
Contour Interval:	20 feet		
Year Created:	1995		
Revised/Inspected:	None		

Realtime GPS Tracking

Connecting

Configuring and Connecting your GPS

For successful communication, the settings in Terrain Navigator Pro must be properly configured to correspond with the GPS unit it is attempting to communicate with. There are two ways to set up the proper configuration settings.

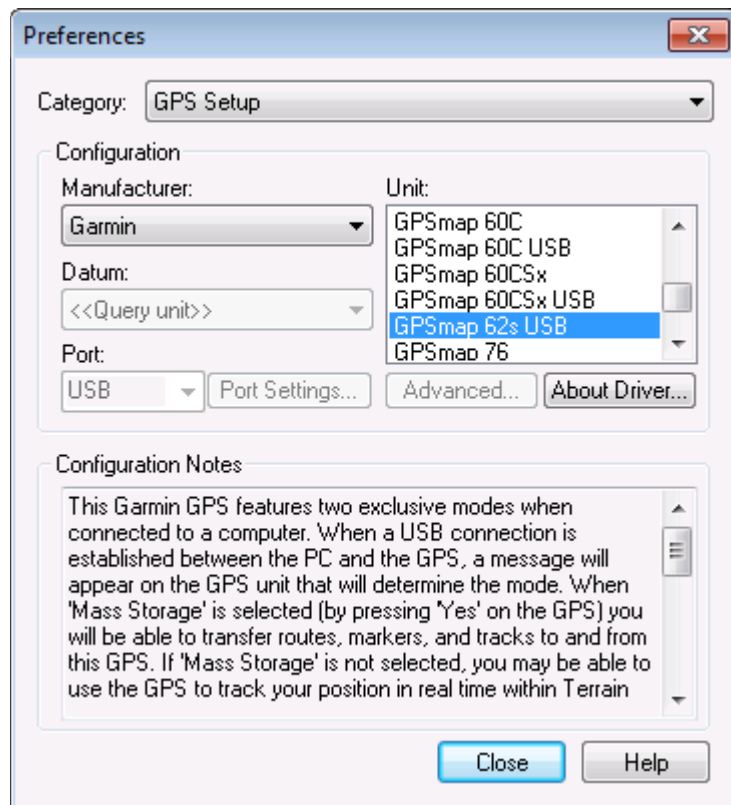
Configure Your GPS Easily with the GPS Setup Wizard

Terrain Navigator Pro includes a GPS Setup Wizard. The Wizard automatically detects a connected GPS unit, determines its make and model, and configures Terrain Navigator Pro accordingly. You can run the wizard anytime by opening the **GPS** menu and choosing the **GPS Setup Wizard**.

Once the GPS Setup Wizard is started, all you have to do is answer the questions on each screen. When you have finished, Terrain Navigator Pro will be ready to communicate with your GPS unit.

Configure GPS Settings Manually

If you don't wish to use the GPS Setup Wizard, or if you have a special configuration, configure the GPS settings manually by opening the **GPS** menu and choosing **Setup**. You can also access this window by opening the **File** menu and choosing **Preferences, GPS Setup**.



Configuration

For the successful sharing of markers, routes, tracks, and maps between your GPS unit and Terrain Navigator Pro, these configuration settings must be set to match your GPS.

Manufacturer: Select the manufacturer of your GPS unit. Then a list of support units will appear.

Unit: Select your specific unit. If your GPS is connected directly to the PC using a USB cable (as opposed to a USB to serial adapter) then be sure to select the USB option for your unit. (Unless you are using an older GPS, your Unit should indicate USB after its name.)

If your model is not listed, you might want to try specifying a similar model produced by your manufacturer. If the two models are internally similar, you may be able to establish successful communication with Terrain Navigator Pro. Trial-and-error is the only way to determine whether this will work. You can also check the GPS

compatibility technical document at <http://tnp.uservoice.com/knowledgebase/> for updated information regarding compatible GPS settings.

If your manufacturer is not listed, you will not be able to transfer stored coordinate data. This means that you won't be able to send or receive waypoints, routes, or track logs between your GPS and Terrain Navigator Pro. (If you have a laptop computer that you travel with, you can probably still connect your GPS using the *NMEA - generic* manufacturer and *NMEA 0183* unit to perform real time GPS tracking.)

Datum: In most cases, you will find that the datum setting is unavailable (grayed out). This is because Terrain Navigator Pro has automatically detected what datum your GPS is set to, and taken care of this setting for you. If the datum setting is not grayed out, please set the datum here in the GPS setup window to match whatever datum your GPS unit is set to. If not, your positions will not be accurately shared.

Port: There are two different types of ports used for connecting external peripherals (such as a GPS) to your PC. The most common port is Universal Serial Bus (USB.) If you have a newer GPS that uses a USB connection, you will usually not need to adjust this setting.

Older GPSs use a COM (Communications) port to connect with the PC. However, most modern PCs lack this older serial connector. If this is the case, obtain a USB-to-Serial adapter at a good computer store, install the required software drivers, and you will be able to connect an older GPS to your PC.

Some GPSs have a built in USB-to-Serial adapter. These include most 'GPS Mouse' style GPSs, which are commonly used for real time GPS tracking. If you have one of these GPSs, install the required drivers (or download them from the web site of the GPS manufacturer), select *NMEA - generic* as the **manufacturer** and *NMEA 0183* as the **unit**, and set the **port** to match the port set up in the driver for the GPS.

For more information on setting up and troubleshooting GPS connections, see the GPS Troubleshooting topic, or visit <http://tnp.uservoice.com/knowledgebase/>.

Advanced: Some GPSs have additional configuration choices. Press Advanced to set these. Usually, these settings will be documented in the Configuration Notes.

About Driver: This window displays the version of the internal 'driver' used by Terrain Navigator Pro to communicate with the selected GPS. Note that this driver is not related to any driver that may be required by the GPS manufacturer to establish communication between the GPS unit and the PC operating system.

Configuration Notes

The bottom of the GPS setup window contains *configuration notes*, specific instructions for using Terrain Navigator Pro with your particular GPS make and model. **IMPORTANT: Be sure to read and follow these instructions. These configuration notes contain vital information, necessary for successful connection as well as specific tricks and tips.** The configuration notes will inform you whether there are any additional settings you need to configure within the GPS unit itself, or using the Advanced button in this GPS Setup window.

Establishing Communication

Once all GPS setup settings are correct, you can establish communication with your GPS unit.

1. Ensure that the GPS unit is connected snugly to its data cable, and that the cable is connected snugly to the USB port (or the COM port specified in the Configuration section of the GPS Setup window.)
2. Turn the GPS on.
3. On some Garmin GPSs, the connection occurs automatically - as indicated by the USB symbol on the GPS screen (or a picture of a GPS plugged into a computer.) On older Garmin GPSs, as

well as those made by most other manufacturers, open the **GPS** menu in Terrain Navigator Pro and select **Connect**.

Verifying Communication

With the exception of those Garmin GPSs that connect automatically to the PC - as indicated by the USB symbol on the GPS screen (or a picture of a GPS plugged into a computer) - you can verify your GPS connection by opening the **GPS** menu in Terrain Navigator Pro and selecting **Connect**. A check mark will appear next to the **Connect** option to indicate that communication has been established. If you receive an error message, the connection was not established: see the GPS Troubleshooting topic, or visit <http://tnp.uservoice.com/knowledgebase/> for assistance.

Once GPS communication is established, a GPS status line will appear along the bottom of the Terrain Navigator Pro window, directly above the dashboard. The screen might flicker momentarily as the map image is shifted up to make room for the GPS status line. The GPS status line will provide information when you're performing data transfers (like sending waypoints to your GPS, or receiving a track log from your GPS). The status line will indicate a good connection with a green check mark, a connection without a valid satellite signal with a yellow explanation point, and a error with a red x.

To keep the status line from appearing, open the **File** menu, choose **Preferences, General** and uncheck **Show GPS status line** in the *Toolbar and dashboard controls*.

If you have a Garmin GPS that connects automatically to the PC - as indicated by the USB symbol on the GPS screen (or a picture of a GPS plugged into a computer) - you can verify the connection by using the **send** and **receive** options in the **GPS** menu of Terrain Navigator Pro. If you receive an error, use the *BaseCamp* software supplied by Garmin to troubleshoot the connection. For more details, see the GPS Troubleshooting topic, or visit <http://tnp.uservoice.com/knowledgebase/> for assistance.

Closing Communication

Once you are done working with your GPS, open the **GPS** menu and uncheck **Connect**. The check mark will be removed from the **Connect** option to indicate that communication is no longer taking place. Doing so will allow Terrain Navigator Pro to work more efficiently. Otherwise, the application's performance will be hindered as it continues to communicate with the GPS. This step is not required for Garmin GPSs that connect automatically to the PC - as indicated by the USB symbol on the GPS screen (or a picture of a GPS plugged into a computer.)

Garmin Spanner: Required for Live Position Tracking

The newest generation of GPS units (most notably Garmin's Oregon, Montana, GPSMap 62, and eTrex 10/20/30 series) work significantly different than their older counterparts. In short, these newer GPSs connect to the computer like a digital camera or USB "thumb drive", allowing the PC to have direct access to the files on the GPS. Prior to these GPSs, only applications that communicated directly with the GPS through a special protocol could request contents.

While direct file access has been a good design decision, it prohibits software products from ascertaining a position from the GPS. In its GPS Tracking menu, Terrain Navigator Pro can be used to plot a real-time position; those desiring to do so must configure the GPS and Terrain Navigator Pro in a different manner.

In the event that you would like to receive a live GPS connection from a Garmin Oregon, Colorado, or GPSMap62, it must be configured to have a "Spanner" Interface Mode. To set the Interface Mode, select Setup, System, Interface on the GPS. Set the Interface Mode to "Garmin Spanner" if you want to allow the GPS to send live position (tracking) information to Terrain Navigator Pro. If you are only looking to share markers, routes, tracks, and maps, set the Interface Mode to "Garmin Serial." (Garmin Serial is also known as Mass Storage.)

If the Interface Mode of the GPS is set to Garmin Spanner, the you will get the following message (or one similar) when you plug the GPS into the PC:

USB Cable Detected.

Would you like to go to Mass Storage?

(Yes or No)

Press Yes to enter Mass Storage Mode, which will allow you to share markers, routes, tracks, and maps between Terrain Navigator Pro and the GPS.

Press No to enter Spanner Mode, which will allow you to track your position on Terrain Navigator Pro's window.

To switch between modes, disconnect and reconnect the USB cable. You will be asked which mode you wish to enter. Press Yes for Mass Storage (data sharing) or No for Spanner (position tracking.)

If you always want to be in Mass Storage mode, and not be bothered with this question, set the Interface Mode (on the GPS in the Setup menu) to Gamin Serial.

While you are in Mass Storage mode, the GPS screen will show a computer connected to a GPS. No options on the GPS screen will be available (and no position/tracking information will be available to Terrain Navigator Pro.) In Spanner mode, the GPS will work exactly as it would if it were not connected to the computer - and Terrain Navigator Pro can use the GPS's position for live tracking. (However, the GPS will not be able to share markers, routes, tracks, or maps until the plug is pulled, reconnected, and Mass Storage mode selected.)

Garmin BaseCamp and Garmin Windows Drivers

Certain older Garmin GPS units (such as the very popular GPSMap 60) require a special driver to communicate with any application in the Windows operating system. The easiest and most reliable way to get this driver is to install the Garmin BaseCamp software, which is available for free download from Garmin's web site. Note that without the Windows driver that is included with BaseCamp, Terrain Navigator Pro will not be able to receive track logs, waypoints, or routes from older Garmin GPSs because the GPS can not be recognized by the Windows operating system. Please plan accordingly if you intend to use Terrain Navigator Pro with older Garmin GPSs.

Configuring Terrain Navigator Pro for use with the Team Tracker Module

For the proper steps in configuring Terrain Navigator Pro to communicate with the GPS supported by the optional Team Tracker Module, please refer to the section titled Equipment and Software Setup in this document.

GPS Status Light

When your GPS is connected, you'll be able to tell GPS status at a glance, using the GPS status light at the bottom of the screen. (If the light is not visible, check **Show GPS Line** in general preferences.)

The GPS status light has four possible "states"--that is, there are four different ways that it can look. Its color and appearance change as necessary to reflect the status of your GPS unit.

You haven't requested GPS communication.

If you want to use your GPS signal for realtime GPS tracking, click **GPS > GPS Tracking > Start Tracking**.

If you want to transfer stored coordinate data, or if you just want to test GPS communication click **GPS > Connect**.

If you have not configured Terrain Navigator Pro's GPS settings yet, here's how.

Your GPS is on and is working properly.

A green check mark indicates that your GPS is properly configured, that it is receiving adequate satellite signals, and that it is capable of providing an accurate position fix. (Note: The green check mark does not mean that Terrain Navigator Pro is using the position data. It simply indicates that the GPS is receiving adequate satellite signals.)

Your GPS is configured properly, but it doesn't have enough satellite signals to fix your position.

If this yellow exclamation point appears during GPS tracking, you should make sure your GPS antenna is properly connected, and make sure that the antenna has a clear view of the sky, in order to pick up as many satellite signals as possible.

If you're only using the GPS for data transfer, and NOT for navigation, you can turn off your GPS unit's satellite search function. This can conserve battery power. (Remember to turn the satellite search function back on when you need position data.)

No Connection.

Indicates one of the following: a) the GPS is turned off, b) the GPS has lost power, c) the GPS cable has become disconnected, or d) the GPS is not properly configured.

If this red "X" appears during navigation, you should immediately check all of the above.

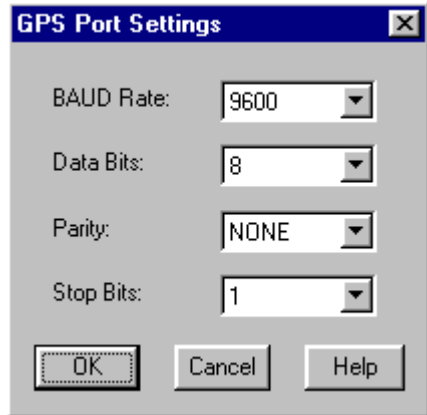
If this red button appears at any other time--for example, when you turn your GPS off after completing a data transfer--this is because Terrain Navigator Pro doesn't "know" that you are done using your GPS unit. Click **GPS > Connect** again to uncheck the **Connect** option. This tells Terrain Navigator Pro that you no longer require GPS communication, and the red X will disappear. **Note:** Being connected to a GPS that has failed, or been physically disconnected, will detract from Terrain Navigator Pro's performance.

Indicates one of the following: a) the GPS is turned off, b) the GPS has lost power, c) the GPS cable has become disconnected, or d) the GPS is not properly configured.

If this red "X" appears during navigation, you should immediately check all of the above.

If this red button appears at any other time--for example, when you turn your GPS off after completing a data transfer--this is because Terrain Navigator Pro doesn't "know" that you are done using your GPS unit. Click **GPS > Connect** again to uncheck the **Connect** option. This tells Terrain Navigator Pro that you no longer require GPS communication, and the red X will disappear. **Note:** Being connected to a GPS that has failed, or been physically disconnected, will detract from Terrain Navigator Pro's performance.

GPS Port Settings



Port settings affect the speed of data transfer during serial communication between your GPS unit and your computer. With most recreational GPS units, these settings are not flexible, but some GPS units do allow for adjustments.

If these options appear grayed out, it means that Terrain Navigator Pro has automatically detected the port settings used by your GPS, and has configured itself to match these settings. In this case, you do not need to concern yourself with the port settings.

If your GPS does allow for adjustments, make sure that the values that you set here in the port settings dialog match the settings in your GPS unit. Once you have configured the port settings dialog to match the values set in your GPS, the port settings dialog will retain these settings for future use, and you won't have to set them again.

Baud rate refers to the number of characters transferred in a given period of time. *Data bits*, *stop bits* and *parity* also affect the way that data is divided in the communication stream. If you are not sure what settings to use, consult your GPS manual.

GPS Troubleshooting

GPS Setup Wizard

Whenever you experience GPS connection problems, the first thing to do is to re-run the GPS Setup Wizard. It will most likely detect the problem and tell you how to fix it. Click **GPS > GPS Setup Wizard**.

If you still have difficulty establishing GPS communication, here are a few things to try:

Check your GPS Cable

Make sure your GPS cable is snugly connected at both ends, and that it is not bent or twisted. Twisting can break wires inside the cable. We have observed that the connections on certain Magellan GPS units are especially susceptible for connection failure at the point where the contacts on the cable and GPS intersect.

GPS Software Drivers

Remember to visit your GPS manufacturer's website for updated drivers for your particular GPS unit. Manufacturers maintain and update software drivers for use with various GPS units, and these drivers are available via internet download. It is a good idea to keep current with the latest software drivers available.

Check for Port Conflicts

Sometimes, a computer system may "reserve" a particular COM port for use with another device (like a handheld computer). This means that even when that device isn't connected, the port may still be blocking access by other devices (in this case, your GPS unit). Use your Windows Control Panel to verify the port's status.

Check for Software Conflicts

Certain software programs may also interfere with COM port operation. If you use Microsoft® ActiveSync® for communicating with a PocketPC handheld device, or HotSync® for connecting to a Palm Powered device, make sure these programs are turned off when you connect your GPS to your computer.

Use HyperTerminal or MTTY to Check your Port and Cable

HyperTerminal, a Windows accessory, may be used to monitor the flow of data at your COM port. Use HyperTerminal (or MTTY) to determine whether your problem is equipment-related.

Try Getting a Satellite Fix

Sometimes a GPS unit will not respond properly until it establishes its geographic location - even if this has nothing to do with the task at hand. If you can, place your GPS unit near a window in order to establish satellite communication, then try connecting again.

Try Other GPS Software

Terrain Navigator Pro

Try connecting your GPS to your computer using the software interface provided by the GPS manufacturer and packaged with your data cable. Until your unit is able to transfer data via the manufacturer's software, it will not work with Terrain Navigator Pro either. If your unit will not function with the manufacturer's software, or if you do not have this software, contact your GPS manufacturer for technical advice on connecting your GPS unit to your computer.

Contact MyTopo

If you have tried these suggestions and still have trouble establishing or maintaining a GPS connection, MyTopo's technical support staff will be happy to assist you. Support is available from Monday-Friday, 9am to 5pm, MountainTime:

Telephone: 800-627-7236

E-mail: tnp@mytopo.com

Fax: 866-207-0626

Internet: <http://tnp.uservoice.com/knowledgebase/>

MyTopo's support site includes a Downloads section with software updates, plug-in utilities, and Technical Documents. In addition, you will find an online technical support discussion forum, where MyTopo customers and technical support staff can share information, suggestions and comments.

Using HyperTerminal to Check your Equipment Connection

1. Close Terrain Navigator Pro.
2. Set your GPS unit to NMEA output. (Garmin users: choose NMEA/NMEA from the GPS's Setup Menu. Magellan users: choose NMEA 0183 2.0 from the NMEA menu. Refer to your GPS unit's manual for instructions if necessary.)
3. Start HyperTerminal: From the Windows **Start** button, choose **Programs, Accessories, Communications, HyperTerminal**. The HyperTerminal program will start. (If you do not have HyperTerminal installed, see below for installation instructions.)
4. If a window comes up asking if you want to configure a modem now, answer **No** or **Cancel**.
5. The Connection Description window should now appear. Type "Test" for the connection's Name and click **OK**.
6. The next window is the Phone Number window. For **Connect Using**, select "Direct to COM1" and click **OK**. In COM1 Properties, change the **Bits per Second** from 2400 to 4800 (since the NMEA 0183 standard specifies 4800 baud rate) and click **OK**.

At this point, one of three things can happen:

You get an error message.

This means that the COM port you have selected is either unavailable, or is not functioning properly. You may have inadvertently specified the wrong COM port name. Close HyperTerminal and repeat the procedure, trying a different COM port this time. If you are sure that you are selecting the proper COM port and calling it by its correct name, that COM port may be defective. Contact your computer manufacturer for further troubleshooting tips.

You get a blank screen with a flashing cursor.

This means that the COM port you have chosen is not receiving NMEA data. Close HyperTerminal and repeat the process, trying a different COM port. If you are certain that you are selecting the proper COM port, contact the manufacturer of your computer or GPS unit for further troubleshooting tips.

You get a screen with text scrolling upward.

You are successfully connected to your GPS unit! The data that you see scrolling by are the NMEA sentences coming from your GPS. Note the COM port that you used for this successful test, and exit HyperTerminal. (When asked if you want to disconnect now, answer Yes. When asked if you want to save session "Test," answer No.)

Now that you have determined the correct COM port, start Terrain Navigator Pro. Leave your GPS unit in NMEA mode for a moment. In Terrain Navigator Pro's GPS Setup window, set Manufacturer to NMEA - Generic, set Unit to NMEA 0183 2.1, choose the correct COM port, and click **OK**. Click **GPS > Connect**. You should now be able to set your GPS back to its native mode - that is, from NMEA to the model-specific mode that's specified in the Driver Notes section of Terrain Navigator Pro's GPS Setup window. Make sure that all settings in the GPS Setup window match the settings in your GPS unit, and click **GPS > Connect** again if necessary. Everything should now be working properly.

I can't find HyperTerminal. How do I install it on my machine?

Terrain Navigator Pro

HyperTerminal is a standard Windows application that is included with some versions of Windows. If it is not installed on your computer, open the Windows Control Panel, choose Add/Remove Programs, select the Windows Setup tab, click on Communications and click **Details**. Check the checkbox for HyperTerminal and click **OK**, then **OK** again. (You may need your Windows CD to complete the installation.)

HyperTerminal is not included with Windows Vista or Windows 7. To check your equipment connections on a computer running Windows Vista or Windows 7, use the MTTY application on your Terrain Navigator Pro Installation CD:

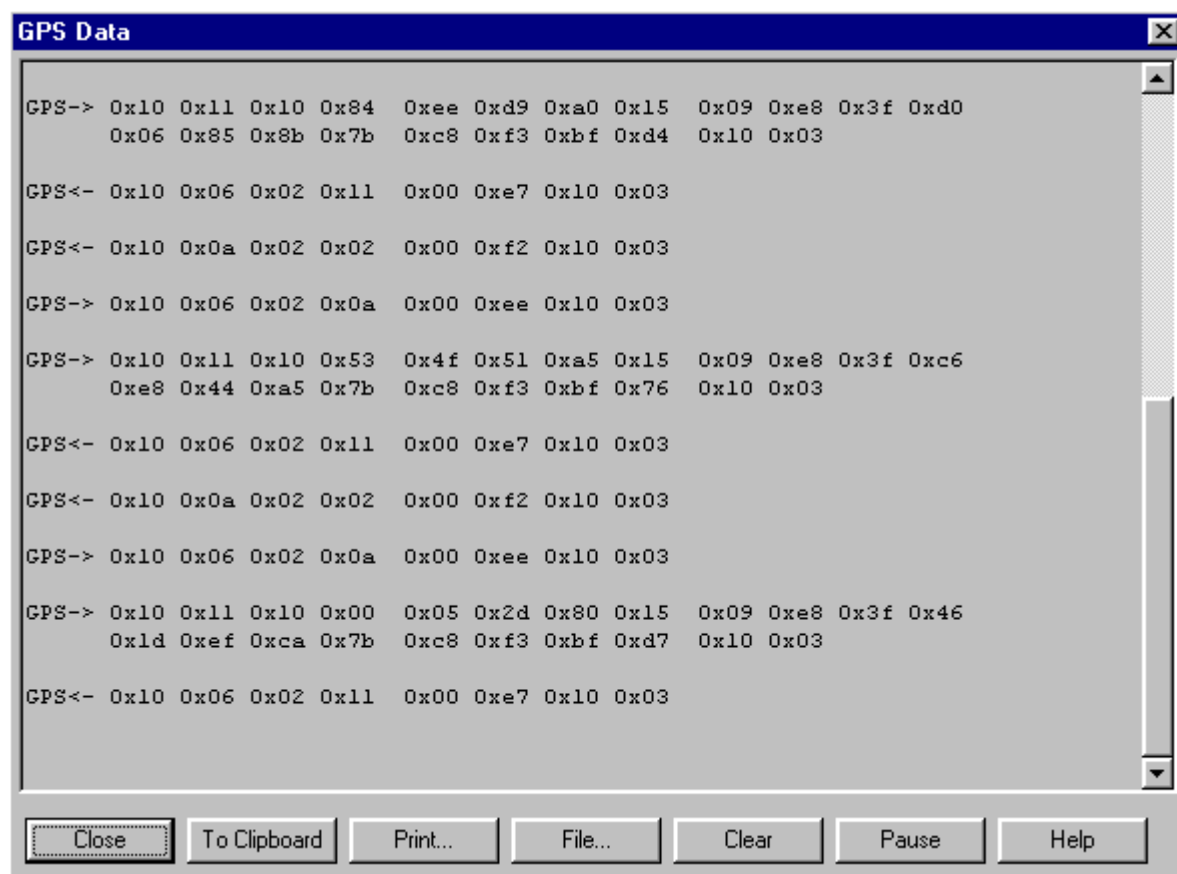
1. Insert your Terrain Navigator Pro Installation CD into your drive.
2. Double-click **My Computer** and right-click the CD drive containing your installation CD. Select **Open**.
3. Double-click the **MTTY** directory.
4. Double-click **MTTY.exe**.

I can't get HyperTerminal to display any data (NMEA sentences).

If you cannot get HyperTerminal to display data after following the above procedure, and trying each COM port, there is something wrong with either your COM port, your data cable, or your GPS unit. Since the source of the problem is outside Terrain Navigator Pro, you should contact your computer or GPS manufacturer for further troubleshooting tips.

GPS Data Window

The GPS data window is a diagnostic tool for advanced GPS users. It enables you to view the data stream that takes place between Terrain Navigator Pro and a connected GPS unit during GPS Tracking. While tracking, click **GPS > Utilities > Show Streaming GPS Data** to open the GPS data window and see the data transfer streaming by.



Options are provided so that you can print or save this information if you like.

To Clipboard: Copies the text to the Windows clipboard, so that you can paste it into another program for further analysis.

Print: Prints all the data that has been shown in this window since you first opened it (or since you last clicked "Clear").

File: Saves this information in a .TXT file.

Clear: Clears all previously reported data from this window and from this session, starting over with a "clean slate" without requiring you to close and then reopen this window.

Pause: Temporarily suspends the appearance of streaming data in this window. While this window is paused, no data will be collected or displayed.

GPS Tracking

Designed for use while moving, GPS tracking lets you monitor your progress on the map. If you like, you can record your progress and save it on the map as a track.

In order to perform GPS tracking, you must have a connected, compatible GPS with a satellite position fix. Once GPS communication is established, open the **GPS** menu and choose **GPS Tracking, Start Tracking**. As soon as Terrain Navigator Pro receives a position signal from your GPS, Terrain Navigator Pro will open the map containing your location, and mark your position with an icon on the map. This icon will move across the map as you move across the terrain.

GPS Position Icon

The position icon points direction in which you're moving, so you can see at a glance which direction you're headed. Whenever you stop moving, the icon becomes a circle. Several icon symbols are available in a variety of colors and sizes. Open the **GPS** menu and choose **GPS Tracking, Tracking Preferences** to choose from several symbols (car, boat, arrow, etc.) to represent your GPS position. (You can also open the **Tracking Preferences** window by opening the **File** menu and choosing **Preferences, GPS Tracking**.) In addition, several other tracking options can be set; for more details, see the topic on **Tracking Preferences**.

Recording Your Progress (Saving Your Track on the Map)

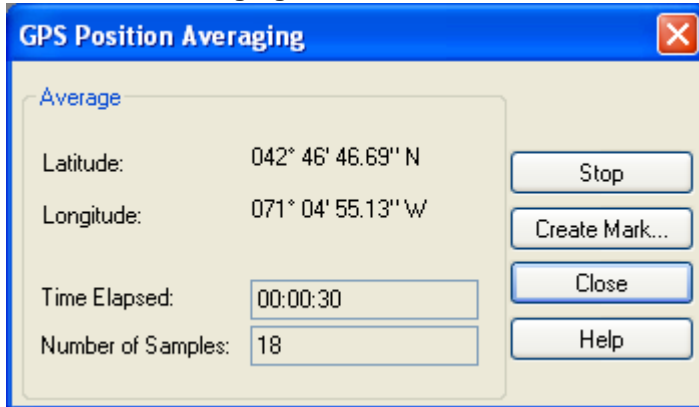
Real-time GPS tracking alone does NOT save anything on the map after you turn off tracking. If you want a track line on the map to show where you've been, you can record your track as you move. Not only will this track line appear on the map while you're tracking, but it will also be saved for future reference.

To record your progress as a track while you move, open the **GPS** menu and choose **Tracking, Record Track**. You will have several options for recording. For additional details, please refer to the topic: **Recording Tracks**.

Tracking Multiple GPS Signals at Once

When equipped with the option Team Tracker module, Terrain Navigator Pro can display the positions of one or more GPSs that are transmitting their position via a compatible GPS microphone or APRS device (via NMEA) to the base station. For more details, please see the topic: **What is Team Tracker?**

GPS Position Averaging



Terrain Navigator Pro is equipped with a position averaging feature for maximum precision in marking locations. A stationary GPS unit will report slightly different coordinates as satellite signals fluctuate. If you require extreme accuracy for marking a particular location, turn position averaging on: click **GPS > Utilities > Position Averaging**. Next, leave your connected GPS in that location for a time in order to allow it to acquire satellite signals and make several position reports. To start collecting those position reports, click the button labeled **Start**. **Number of Samples** tells

you how many position reports Terrain Navigator Pro has acquired. **Elapsed Time** indicates how long position averaging has been underway. When you feel that enough position data has been acquired, click the button labeled **Create Mark**. Terrain Navigator Pro will take the average of all positions reported by your GPS since GPS position averaging was turned on, and will place a mark at the averaged position.

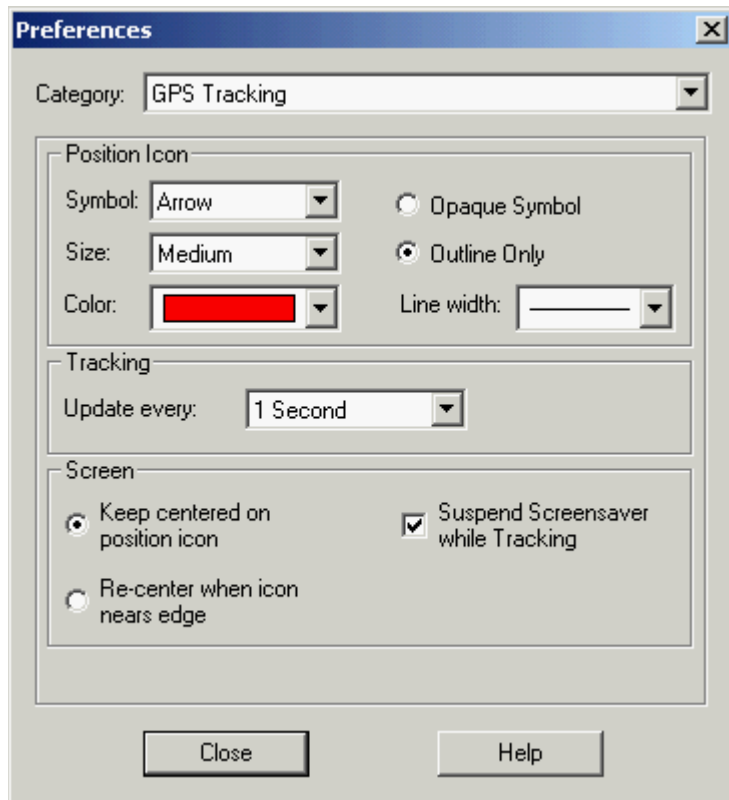
The GPS position averaging window will remain open until you click the **Close** button.

Notes:

- The Start button is relabeled "Stop" while averaging is underway. You can use this button to toggle the position collection process on and off.
- You can click the **Create Marker** button as many times as you wish while averaging is underway.

GPS Tracking Preferences

Click **File>Preferences>GPS Tracking** to set up GPS Tracking Preferences.



Recording Tracks

Terrain Navigator Pro includes a realtime GPS Tracking feature, designed for use in a moving vehicle. During GPS Tracking, a GPS Position Icon is moved across the map to represent your progress over the terrain. If you want to see not only where you are, but also where you have been, and save your path of travel as a track line on the map, you must record your track.

GPS Tracking requires a position signal from a connected GPS. To start tracking, open the **GPS** menu and choose **GPS Tracking, Start Tracking**. Once tracking is underway, you can record your progress: open the **GPS** menu and choose **GPS Tracking, Record Track**. You'll have several options for recording.

Log

Name: Assign a name to this track. The track will be stored in your track list.

New: This track will be saved under the name you assigned above.

Append: Click **Append** to attach this track line to any track you previously created. For example, if you're making a journey over a period of several days with breaks in between, or if you're hiking a trail in segments over time, you can use this append feature to add on to the original track line each time. When you click **Append**, the Name field becomes a drop-down list; select the name of the track you want to add to.

Overwrite: Suppose you routinely track your progress on a particular journey and you want to reuse the same track name each time. You can click **Overwrite** and under the Name drop-down, select the name of the track you want to replace. The old track will be deleted from memory and replaced with this new track, saved under the same name.

Points

Each time you record your GPS location, your coordinates are saved as a track point. These points are then "stitched" together to form a line, or track log. Select a recording method to determine how often Terrain Navigator Pro should record your position. There are three recording methods available:

By Time. If you plan to move at a fairly constant pace and direction, you may want to record your position at regular time intervals. This will result in fairly evenly spaced track points, thereby creating an accurate representation of your travels. Specify an interval that's reasonable for your pace and direction. (In general, if you're moving fairly slowly, you won't need to record your position very often. In such cases, set the recording interval to give yourself enough time to move an appreciable distance from your last recorded point. The faster you're going, the more frequently you will need to record your location in order to get an accurate record of your travels.)

By Distance. If your speed fluctuates, or if you anticipate occasional stops, you may want to record your progress by distance. Terrain Navigator Pro will wait until you have moved the specified distance before recording each new track point. This way you can avoid collecting multiple points in the same general area - something that otherwise may happen whenever you stop moving.

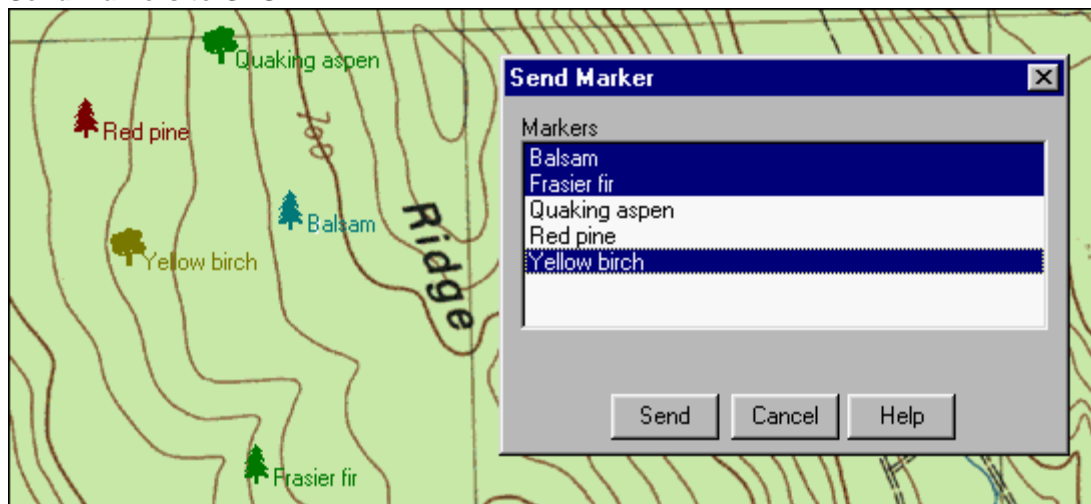
By Direction Change. If your pace might fluctuate, and if your path of travel contains frequent direction changes, your best bet is to record track points by direction change. Terrain Navigator Pro will base track points on your motion. When you're moving in a fairly straight line, that portion of your journey might only have two or three track points. If you make a switchback turn, Terrain Navigator Pro will mark each turning point with a track point. This recording method is useful no matter what speed you travel or how far you go. You can control your track's accuracy by specifying Minimum Allowable Error: the lower the error you allow, the more track points Terrain Navigator Pro will record. Set the Error amount so that it's low enough for an accurate representation, but not so high that you end up with a large number of unnecessary points.

Reusing Your Track for Navigation

If you want to use your GPS to follow this path of travel again in the future, you can convert this track into a route, then send the route to your GPS.

Sending Data to GPS

Send Markers to GPS



This feature lets you take markers that you have created within Terrain Navigator Pro and transfer the data to your GPS unit. The markers will appear as stand-alone waypoints on your GPS.

Click **GPS > Send to GPS > Send Markers** and Terrain Navigator Pro will present a list of all available markers. Highlight those you wish to send to your GPS. (Hold the Shift key to select several markers in a row, or hold the Control key to single out specific markers to send.)

Markers Appear as Waypoints in GPS

Your GPS will present your markers as waypoints, identified by their GPS names.

Understand Your GPS Unit's Waypoint Storage Options

Before sending markers to your GPS, be sure that you know how your GPS unit handles waypoint storage.

Route names

Make sure that you don't already have a route of the same name stored in your GPS: for example, if you already have a waypoint named "H2O" in your GPS and you send it another "H2O," the GPS unit may overwrite the old H2O and replace it with the new one.

Number of waypoints

Find out how many waypoints your GPS unit can store. Some GPS units might overwrite existing waypoints in order to accept the new waypoints that you send.

Driver Notes

For tips and cautions for your particular GPS make and model, see the Driver Notes section of Terrain Navigator Pro's GPS Setup window.

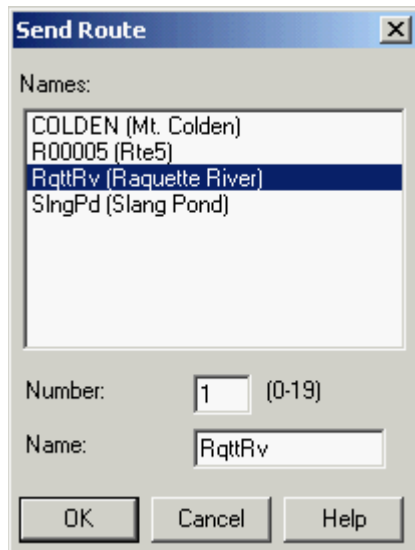
Consult your GPS manual

Terrain Navigator Pro

You should also thoroughly read your GPS user's manual and familiarize yourself with storage functions of your GPS unit before attempting any data transfers.

After you send routes to your GPS, your marker data will still be retained within Terrain Navigator Pro. To edit or delete markers in Terrain Navigator Pro, click **Layers > Markers**.

Send Route to GPS



You can create routes on the maps in Terrain Navigator Pro, and send these routes to your GPS unit.

First, configure and connect your GPS. Click **GPS > Send to GPS > Send Route**, and Terrain Navigator Pro will display a list of all available routes. Highlight the route you wish to send to your GPS, and click **OK**. You may only send one route at a time.

Understand Your GPS Unit's Route Storage Options

Before sending routes to your GPS, be sure that you know how your GPS unit handles route storage.

Number of routes

Find out how many routes your GPS unit can store. Some GPS units might overwrite existing routes in order to accept the new routes that you send. For example, say your GPS can store up to 10 routes, and it already has six routes in memory. In a slot-based GPS, this means it has four "empty slots" in which to store additional routes: slots 1-6 are occupied and slots 7-10 are available. If you send five new routes, the GPS unit might "wrap around" the route list - placing four of the new routes in slots 7-10, then deleting existing data from slot 1 in order to make room for the fifth new route.

Number of waypoints

Find out how many waypoints your GPS unit can store. Some GPS units might overwrite existing waypoints in order to accept the new waypoints that you send.

Route names

Make sure that you don't already have a route of the same name stored in your GPS: for example, if you already have a "Route1" in your GPS and you send another "Route1" to your GPS, the GPS unit may overwrite the old Route1 and replace it with the new one.

Driver Notes

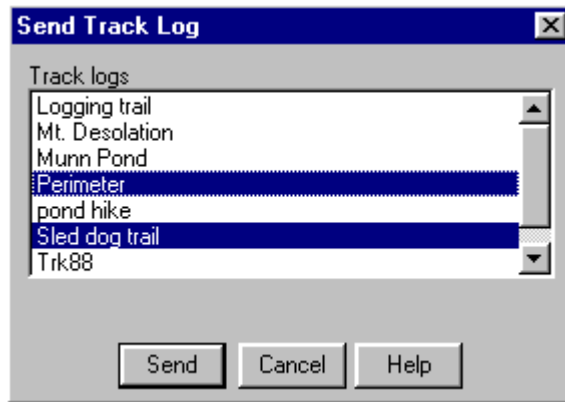
For tips and cautions for your particular GPS make and model, see the Driver Notes section of Terrain Navigator Pro's GPS Setup window.

Consult your GPS manual

You should also thoroughly read your GPS user's manual and familiarize yourself with storage functions of your GPS unit before attempting any data transfers.

After you send routes to your GPS, your route data will still be retained within Terrain Navigator Pro. To edit or delete routes in Terrain Navigator Pro, click **Layers > Routes**.

Send Tracks to GPS



As you may know, a GPS unit may be used to record a track log - a collection of subsequent position readings which together form a record of your movement over terrain. These track logs may be transferred into Terrain Navigator Pro, where they are displayed as lines on the map. You can also create tracks by hand on the maps in Terrain Navigator Pro, and send these tracks to your GPS unit.

Click **GPS > Send to GPS > Send Tracks**, and Terrain Navigator Pro will display a list of all available tracks. Highlight the track(s) you wish to send to your GPS. (Hold the Shift key to select several tracks in a row, or hold the Control key to single out specific tracks.)

Understand Your GPS Unit's Track Storage Options

Before sending tracks to your GPS, be sure that you know how your GPS unit handles track log storage.

Number of track logs

Find out how many track logs your GPS unit can store. Some GPS units can only store one track at a time, in which case you may not be able to send a new track log. Also, some GPS units might overwrite existing track logs in order to accept the new track logs that you send. For example, say your GPS can store up to 10 track logs, and it already has six track logs in memory. In a slot-based GPS, this means it has four "empty slots" in which to store additional tracks: slots 1-6 are occupied and slots 7-10 are available. If you send five new tracks, the GPS unit might "wrap around" the track list: placing four of the new tracks in slots 7-10, then deleting existing data from slot 1 in order to make room for the fifth new track.

Track names

You should also find out whether your GPS unit will use the track name that you created in Terrain Navigator Pro, or whether it will assign the track log a new name. Make sure that you don't already have a track log of the same name stored in your GPS: for example, if you already have a "Track1" in your GPS and you send another "Track1" to your GPS, the GPS unit may overwrite the old Track1 and replace it with the new one.

Driver Notes

For tips and cautions for your particular GPS make and model, see the Driver Notes section of Terrain Navigator Pro's GPS Setup window.

Consult your GPS manual

You should also thoroughly read your GPS user's manual and familiarize yourself with storage functions of your GPS unit before attempting any data transfers.

Notes:

- Some Magellan GPS units supported by Terrain Navigator Pro are not able to receive tracks from Terrain Navigator Pro. This is simply because these GPS units are not capable of receiving tracks from other applications.

- After you send tracks to your GPS, your track data will still be retained within Terrain Navigator Pro. To edit or delete tracks in Terrain Navigator Pro, click **Layers > Tracks**.

Receiving Data from GPS

Receive Waypoints From GPS

If you have waypoints stored in your GPS and would like to see those waypoint locations on the maps in Terrain Navigator Pro, you can transfer them to your computer. Connect your GPS unit and click **GPS > Receive from GPS > Receive Waypoints**.

Terrain Navigator Pro will communicate with your GPS and present a list of all the waypoints currently stored in the GPS unit's memory. (This can take a few seconds, possibly slightly longer if you have a great number of stored waypoints.) From the list provided, select the waypoints that you would like to bring into Terrain Navigator Pro. (Use the Shift and Control keys to make multiple selections.)

When you have made your selections, click **OK**. A small message will appear on the screen, telling you the number of waypoints received. The waypoints that you selected will appear on the maps as markers, and will be added to the list of markers in the edit markers window. These new markers will be assigned whatever default symbol and color you specified in marker preferences.

Receive Waypoints From GPS

If you have waypoints stored in your GPS and would like to see those waypoint locations on the maps in Terrain Navigator Pro, you can transfer them to your computer. Connect your GPS unit and click **GPS > Receive from GPS > Receive Waypoints**.

Terrain Navigator Pro will communicate with your GPS and present a list of all the waypoints currently stored in the GPS unit's memory. (This can take a few seconds, possibly slightly longer if you have a great number of stored waypoints.) From the list provided, select the waypoints that you would like to bring into Terrain Navigator Pro. (Use the Shift and Control keys to make multiple selections.)

When you have made your selections, click **OK**. A small message will appear on the screen, telling you the number of waypoints received. The waypoints that you selected will appear on the maps as markers, and will be added to the list of markers in the edit markers window. These new markers will be assigned whatever default symbol and color you specified in marker preferences.

Receive Routes From GPS

If you have routes stored in your GPS unit, you can bring them into Terrain Navigator Pro to view and edit them on the maps. Connect your GPS unit and click **GPS > Receive from GPS > Receive Routes**. Terrain Navigator Pro will communicate with your GPS unit and create a list of all the routes stored in your GPS unit's memory. (This may take a few minutes, depending on how many routes you have, and how many waypoints each route contains.) From this list, select the routes you want to bring into Terrain Navigator Pro. Use the Shift and Control keys to make multiple selections. When you have made your selections, click **OK**.

Finding a Route

To quickly bring a route into view on the screen, click **Find > Route** and select the route from the list.

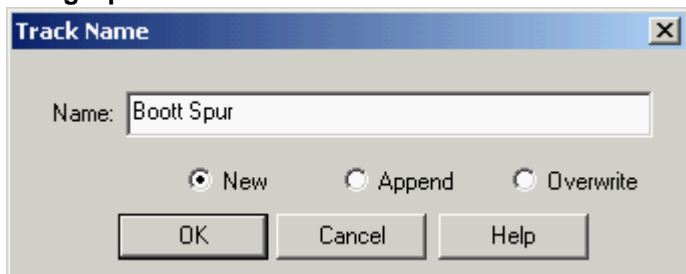
Receive Tracks From GPS

As you know, you can create tracks by hand on the maps in Terrain Navigator Pro. In addition, if you have track logs stored in your GPS unit, you can also bring them into Terrain Navigator Pro to view them on the maps. Connect your GPS unit and click **GPS > Receive from GPS > Receive Track Logs**.

Terrain Navigator Pro will communicate with your GPS unit and create a list of all the track logs stored in your GPS unit's memory. (This may take several minutes, depending on how many track logs you have, and how many points each log contains.) From this list, select the tracks that you want to bring into Terrain Navigator Pro. You can use the Shift and Control keys to make multiple selections. When you have made your selections, click **OK**.

Since most GPS units use numbers for track names, Terrain Navigator Pro gives you a chance to assign a more descriptive name to the track(s) you're receiving. The track name window will appear if you choose to rename your tracks on import, or if the track you wish to import has the same name as a track already present in Terrain Navigator Pro.

Naming Options



Choose **New** if you want this to be a completely new, stand-alone track.

To add on to an existing track, choose **Append**. When you choose Append, the Name field becomes a drop-down list, with the names of all existing tracks. Select the track you wish to build onto. The new track points will be attached to the end of this track.

To replace an existing track, choose **Overwrite**. This will delete the old track and use the same track name for this new track.

When you have assigned names to all the tracks you are receiving, Terrain Navigator Pro will retrieve the track points from your GPS. The tracks will appear on the maps and will be added to the list of tracks in the edit tracks window.

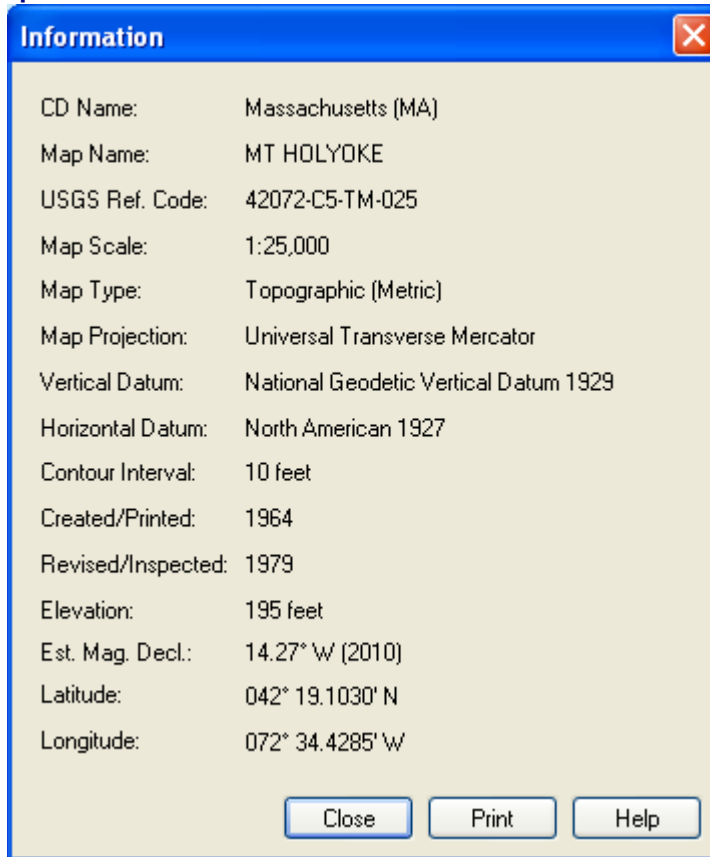
Note: When assigning names to new tracks, it's a good idea to try to keep all your track names unique, so you can tell your tracks apart.


Finding a Track

To quickly bring a track into view on the screen, click **Find > Track** and select the track from the list.

About Maps

Map Information



To view various statistics about the map you're viewing, open the **File** menu and choose **Map Information** (or select the Information Tool  from the toolbar, then click anywhere on the map). Many of the statistics provided are taken from the original paper map's collar - the white border where the USGS prints technical information (if you're viewing maps in single-map mode, you can read the collar for yourself). The map information window is a quick way to see all these statistics in one place.

When the Information tool is clicked on a Layer, additional information is given about the layer clicked upon. This information is presented in a column to the right of the map information. For details, please see the topics on Marker Information, Route Information, Track Information, Range Ring Information, Range/Bearing Line Information, GeoPin Information, Polygon Information, and Overlay Information.

A **Print** button is available to send the map information to the attached printer. You can also access all of these statistics (and

many others) using the dynamic values available in the Summary and Text Page Blocks. For more information, see the topic on Printing Page Blocks.

The following map information is displayed:

State Name

The name of the US state that contains this map. The code in parenthesis refers to the internal identifier Terrain Navigator Pro uses for this particular map disc.

Map Name

The official name of the USGS map. Each map is named for the most notable or prominent feature contained in its coverage (a city or town, a summit, etc.).

USGS Reference Code

The USGS assigns each map a unique reference code. This number indicates the quadrant covered by the map. Each element of the reference code has a specific meaning.

For example, the reference code 41077-B3-TF-024 tells you the following:

- 41 the map's coverage area is found at a latitude of 41 degrees.

- 077 the map's coverage area is found at a longitude of 77 degrees.
- B the map is in the second grid position north of 41 degrees.
- 3 the map is in the third grid position west of 77 degrees.
- TF a topographic map with contours measured in feet.
- 024 the map scale is 1:24,000.

Map Scale

The relationship between the distance on a map, and distances on the ground is known as the map scale. Most MyTopo CDs provide maps at 1:24,000, 1:25,000, and 1:100,000. Most MyTopo DVDs offer an additional map scale: 1:250,000. Aerial Photos have scales from 1:12,000 down to 1:3600.

Map Type

Terrain Navigator Pro uses topographic maps, bathymetric topographic maps and orthographic photos. Aerial Photos and an optional Street Module are also available map types. The unit of elevation measurement (feet or meters) is also given here for map types that display contour information.

Map Projection

A *map projection* is any method used in cartography to represent the two-dimensional curved surface of the earth. The map projection shown here is the projection of the source map image.

Some common map projections include:

- **Transverse Mercator**
The Transverse Mercator projection in its various forms is the most widely used projected coordinate system for topographic mapping. Provides good scale in a north-south direction.
- **Lambert Conformal Conic**
A Lambert conformal conic projection superimposes a cone over the Earth. This minimizes distortion from projecting a three dimensional surface to a two-dimensional surface.
- **Universal Transverse Mercator**
The UTM system divides the surface of the Earth into 60 zones. Zone numbering increases in an easterly direction. Like Transverse Mercator, it provides good scale in a north-south direction.

Note that this is the projection of the source image, which is not necessarily the same as the printed map. (In some cases, USGS Digital Raster Graphics (DRGs) are used in Terrain Navigator Pro - these were processed by the USGS into the UTM projection.) For the projection of the source map (including zone parameters) use the Single-Map view to read the collar information in the lower left-hand corner.

Horizontal Datum, Vertical Datum

The datum(s) the original map was drawn in. This is not necessarily the same datum specified in Coordinate Preferences. Map types that do not display contours (such as aerial photos) will not indicate a vertical datum. For more information, please see the topic devoted to map datums.

Contour Interval

The amount of elevation change between adjacent contour lines. Map types that do not display contours (such as aerial photos) will not indicate a contour interval.

Year Created/Printed

The year that the map coverage for this area was produced. However, some maps are updated/revised to a later date (see below.) In other cases, the year may reflect the edition of the map - which is the last time

the USGS added revisions. For more details, use the Single-Map view to read the collar information in the lower left-hand and lower right-hand corners.

Revised/Inspected

The USGS periodically reviews areas it has mapped, and, if necessary, modifies its original topographic coverage to reflect any new changes in the shape of the terrain. The date of a map's inspection or revision is given here (it can also be found along the bottom of most USGS topographic maps.) Maps that have not been changed since their original publication date, and map types that are not ever revised (such as aerial photos) will not indicate a revised/inspected date. Note, in some cases, the Revised/Inspected date is reflected in the Year Created/Printed field when the map was processed by outside sources. For more details, use the Single-Map view to read the collar information in the lower left-hand and lower right-hand corners.

Elevation

The approximate elevation of the point where you clicked the Information tool. If the Information window was opened without using the information tool, then the approximate elevation of the center of the map display is shown. To display this in English or Metric values, change Coordinate Preferences.

Estimated Magnetic Declination

Terrain Navigator Pro uses an internal table to compute the magnetic declination at the position shown. This table is updated periodically, and is more accurate than the information displayed in the collar of the topographic map (since the USGS does not update maps with the same frequency that the polar magnetic fields shift.) The year in parenthesis indicates the year that the internal table was updated.

Map Coordinates

The latitude and longitude (or other coordinate position format, as specified in Coordinate Preferences) of the point where you clicked the Information tool. If the Information window was opened without using the information tool, then the coordinates of the center of the map display is shown.

Map Accuracy

Raster Images

The map images on MyTopo topographic CDs are *raster* images, which means they are pixel-based. A pixel is the smallest building-block of the image on your screen. If you adjust your screen's resolution (this setting is usually found in the Control Panel or under **Start > Settings**, depending on your version of Windows), you are adjusting the number of pixels it can display at one time. For example, a screen resolution/Desktop area of 800 X 600 means that the screen can display images up to 800 pixels wide and 600 pixels tall.

Coordinate Display is Referenced to Pixels

When you use Terrain Navigator Pro to find the coordinates of a map location, the coordinates are calculated for the pixel nearest to your cursor. The accuracy of these coordinates depends on the scale and accuracy of the map image you're working with.

The popular 7.5-minute topographic quadrangles - usually the most detailed map scale found on MyTopo CDs - provides map coverage at a scale of 1:24,000. On the original USGS paper maps in this series, one inch on the map represents 2,000 feet on the ground.

1:24,000 means that 1 inch on paper = 24,000 inches on ground

24,000 inches / 12 = 2,000 feet

Terrain Navigator Pro samples these maps at 160 dpi (dots per inch). This means that the map image uses a row of 160 pixels to represent 2,000 linear feet on the ground. Each pixel therefore represents an area 12.5 feet wide.

2,000 / 160 = 12.5

Because pixels are square, each one represents 156.25 square feet (12.5 X 12.5).

Assuming the original USGS topographic maps were 100% accurate, this means that the coordinates provided by Terrain Navigator Pro would always be within 15 feet of the actual position. However, it is next to impossible to make a 1:24,000-scale map that is accurate within inches on the ground. To ensure maximum practicable accuracy, the USGS has adopted National Map Accuracy Standards.

USGS and National Map Accuracy Standard

According to these standards, cartographers strive to ensure that any point on a 1:24,000-scale paper map is accurate within 1/50th of an inch. On the ground, this translates into a distance of 40 feet.

1 inch = 2,000 feet

2,000 / 50 = 40 feet

See for Yourself

The process of assigning coordinates to specific pixels in a map image is called *georeferencing*. You can observe the accuracy of your digital map images by viewing a map in Single-Map View. Place the cursor over any of the map's four corners, and compare the displayed coordinates with those printed on the map. (You may find it easiest to use the Centering tool and set your General Preferences to degrees-minutes-seconds. You should also ensure that your Datum setting, also found under General Preferences, is set to Local so that Terrain Navigator Pro will display coordinates in the same datum as the printed map.) The two sets of coordinates should always match within five tenths of a second. If you should find any map title that does not meet this requirement, please contact us. If a georeferencing error is found, we will issue a correction.

Map Projection

A *map projection* is any method used in cartography to represent the two-dimensional curved surface of the earth. Some common map projections:

Transverse MercatorThe Transverse Mercator projection in its various forms is the most widely used projected coordinate system for topographic mapping. Provides good scale in a north-south direction

Lambert Conformal ConicA Lambert conformal conic projection superimposes a cone over the Earth. This minimizes distortion from projecting a three dimensional surface to a two-dimensional surface.

Universal Transverse MercatorThe UTM system divides the surface of the Earth into 60 zones. Zone numbering increases in an easterly direction.

Datum

What is datum?

Simply put, datum is a model used for calculating the location of the Earth's center. This center calculation is used as a reference point in establishing coordinate locations, like latitude/longitude, on the Earth's surface.

Why does it matter?

There are many different datum types. A coordinate location calculated using one datum may differ by several hundred feet from the same coordinates calculated from another datum. Therefore, before relying on coordinate location information, it is important to know what datum was used in establishing those coordinates.

What do I need to do about it?

This depends.

When you're transferring coordinates between Terrain Navigator Pro and your GPS, all you need to do is make sure your GPS datum is correctly specified in Terrain Navigator Pro's GPS Setup window. Once Terrain Navigator Pro knows what datum your GPS is using, it can convert datum as necessary to ensure that nothing gets "lost in translation."

With some GPS models, Terrain Navigator Pro can detect the GPS datum setting automatically. In such cases, the Datum setting in Terrain Navigator Pro's GPS setup window will be grayed out. This is because Terrain Navigator Pro already knows what datum your GPS is set to.

When you're transferring coordinates via any other method, you need to be conscious of datum. Such instances include:

- *Typing lat/lon coordinates by hand in Terrain Navigator Pro.* You need to know A) the datum of those coordinates, and B) the datum that Terrain Navigator Pro is using. The two datum types must match. (Click **File > Preferences > Coordinates** to find out what datum Terrain Navigator Pro is using.)
- *Exporting layer data in text file format.* The coordinates in these text files are given in WGS84 datum (World Geodetic System of 1984). Keep this in mind if you plan to use the data in another application.
- *Reading a lat/lon off your computer screen and typing it by hand into your GPS.* Without the benefit of an electronic connection, it is up to you to ensure that the datum of your GPS matches the datum in which Terrain Navigator Pro is presenting the coordinates.

To find out what datum Terrain Navigator Pro is using, or to change Terrain Navigator Pro's datum setting, click **File > Preferences > Coordinates**.

Note: Regardless of the Datum setting specified in Coordinate Preferences, data exported from Terrain Navigator Pro (in TXF, RXF, MXF etc.) will use the WGS84 Datum.

Magnetic Declination

As you may know, you can set Terrain Navigator Pro to display bearing data in either True North or Magnetic North: click File > Preferences > General to adjust this setting.

Terrain Navigator Pro uses a current computer model to calculate the position of Magnetic North. This has several implications.

- The location of Magnetic North shifts slightly over time. As a result, the listing for Magnetic North on a very old USGS map may not agree exactly with Terrain Navigator Pro's calculation.
- Neither the magnetic declination listed on a USGS map nor the one calculated by Terrain Navigator Pro take into account local variances. You may need to take this into account when making precise readings.

To obtain the magnetic declination calculated by Terrain Navigator Pro, draw a distance line at a 0-degree angle (straight north). Use Preferences to set the Bearing North to Magnetic. Go back to the distance line and get the bearing information. The heading shown will be that of the magnetic declination.

When printing maps, you may choose to include a Magnetic North Arrow and/or magnetic north lines, in the lower left corner of your printout. This can come in handy if you use a handheld compass in conjunction with your printed maps.

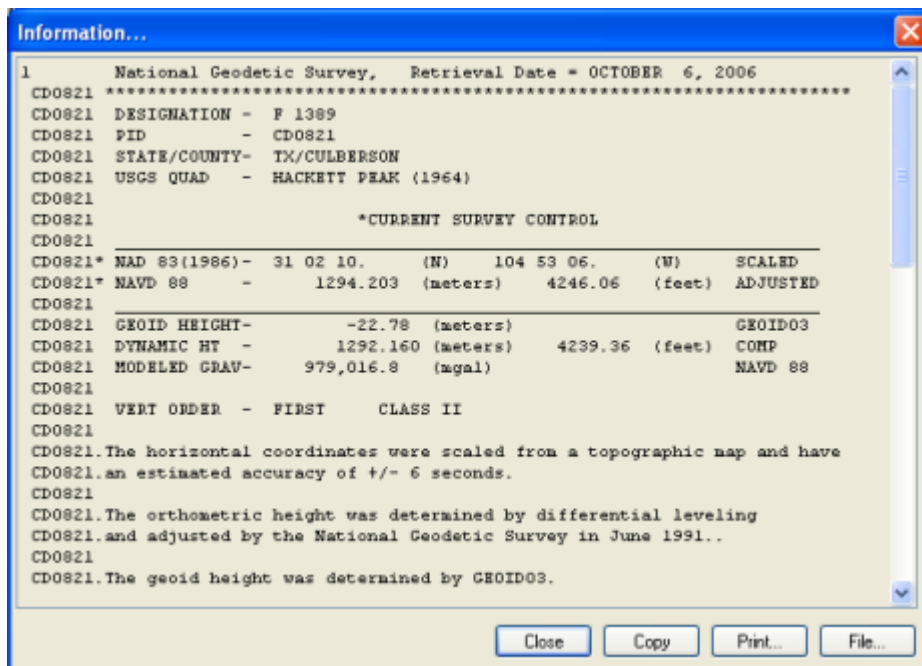
Benchmarks



Terrain Navigator Pro includes National Geodetic Survey (NGS) data for benchmarks. To view the NGS data sheet for any benchmark, click the benchmark icon using the information tool. You can then **Print** the data sheet or **Copy** it to your Windows Clipboard, and paste the data sheet into most Windows applications (for example, open Microsoft Word and click **Edit > Paste** to view the data sheet). Press **File** to export the data sheet to a .TXT or .NGS file.

NGS data sheets may also be included when exporting maps.

To show or hide benchmark icons (the red triangles that appear on the maps), use layer visibility.



Current NGS Benchmark Data Sheets are available by logging into your Registration Account at <http://www.terrainnavigator.com>. These are usually updated every 3-6 months, but can be updated upon customer request.

Printing and Publishing Maps

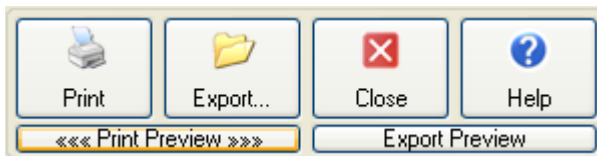
Printing and Publishing: Getting Started

Introduction

Terrain Navigator Pro includes many features to present, work with, and create various types of maps. Once you've made a set of Layers you may want to share your creation with others. In some cases, this may be as simple as pressing the Print button and passing along a page taken from an ink-jet printer. Maybe you'll want to create something more complex - including a legend or corporate logo. And, in this era of the paperless office, maybe you'll wish to attach your masterpiece to an email - or include it in a presentation. All of these printing and publishing options are at your fingertips with Terrain Navigator Pro.

Getting Started with Printing and Publishing

To print some or all of the map on the screen, open the **File** menu and choose **Print** (or press the Print button). This opens the Print Window. The Print Window is divided into 2 halves: the left side is used to design the finished page, the right side is a live preview of that page.



The left side of the Print Window has four operations buttons across the top: *Print* - press it to send the map to the printer, *Export* - for saving the map as an image file, *Close* - to exit the Print Window, and *Help* - which opens this help page. There are also two buttons that determine the type of preview that is being shown to

the left: the *Print Preview* depicts what the map will look like when sent to a printer or printer-like file (such as a PDF document), the *Export Preview* depicts the map as it will appear when saved to an image file (such as a JPG) that may be included in a report, or attached to an email.



In the upper left hand corner of the Preview Area, you will find a 3-way toggle button that changes the *Zoom* of the previewed output. **All** fits the entire page (or pages) into the Preview Area, **1:1** displays the page at the exact resolution as the finished product (monitor calibration may be required), and **2:1** doubles the actual size - for making fine adjustments to the finished page.

Note: In some circumstances, when attempting to preview a very large map, the zoom level of All may be the only one available.

As you explore the various tools, buttons, and options, you'll discover that if you hold the mouse cursor over any control, a brief "Tool Tip" will appear that explains the action of that particular function. These descriptions, when used in conjunction with this document, will help you navigate the seemingly endless options available to you for the layout of a printed page.

Creating a Simple Printed Map

While Terrain Navigator Pro is designed with unprecedented print and publishing capabilities, creating a simple map of the area is easy to do. Open the **File** menu and choose **Print** (or press the Print button) to open the Print Window. In the preview area, you will see your map exactly as it will appear on the printed page. Use the hand tool to drag the position of the map accordingly. You will see that the default settings (called *Templates* - more about those later) has a margin around the edges and includes a ruler with gridlines and a scale bar.


Some things you may wish to do with the default template:

To extend the map past the margins, set the *Zoom* to All and click on the map page block. Notice that this is the same as clicking on the *Map* in the list of *Page Blocks* in the *Properties* tab. (The map is one of many types of Page Blocks.) The map will now have 5 control points along its edge that appear as little black boxes. Click one of the control points and drag it. Notice that the map will shrink and expand depending on where you drag the control point. Use the control points along the edge of the map to extend (or contract) the map to the desired shape.

To turn off the grids, set the *Zoom* to All and click on the map page block. This is the same as clicking on the *Map* in the list of *Page Blocks* in the *Properties* tab. In the **Properties** tab, notice the *Grid style* setting. Change the Grid style to **Ruler Only** to remove the grid lines (but keep the ruler along the edge) or **No Ruler** to remove both the ruler and gridlines.

To zoom in or out on the map or change the area of the map shown on the final printed page, set the *Zoom* to All and click on the map page block. This is the same as clicking on the *Map* in the list of *Page Blocks* in the *Properties* tab. In the **Properties** tab, notice the *Size* setting. Here you can specify the scale as a ratio (such as 1:24,000) or as a percent of the scale of the original map. For a quick adjustment, set the *Size* to **Percent** and then adjust the percentage. A larger percentage will zoom the map in, a smaller percentage will zoom the map out. Press **Update** to see how those changes will appear on the final printed page.

To change or remove the map scale bars, set the *Zoom* to All and click on the scale bar page block. This is the same as clicking on the *Scale* in the list of *Page Blocks* in the *Properties* tab. (The Scale block is one of many types of Page Blocks.) Adjust the various *Properties* to change the appearance of the scale bar.

To remove the scale bars all together, press the Delete key or the Delete Button:  on the list of available *Page Blocks*.

To change which layers are included on the printed page, set the *Zoom* to All and click on the map page block. This is the same as clicking on the *Map* in the list of *Page Blocks* in the *Properties* tab. Check **Print layers** to include layers on the map, uncheck **Print layers** if you do not want to include any layers. If you want to include only some of your layers, press **Select layers** to indicate the types of layers you wish to show or hide. An in the list of layers indicates that the layer will be included on the final printed or saved image.

To print to a different printer, click the Printer/File tab. In the Printed Page Layout section, select the desired **Printer** from the list of printers available.

Once you are satisfied with your settings, press **Print**. The map will be sent to your printer and will appear exactly as shown in the preview area.

Advanced Printing and Publishing

The brief tutorial outlined above only begins to scratch the surface of all of the various possibilities to present your maps to a larger audience through a printed page, or by an electronic image. To learn more, select one of the topics below:

Page Blocks

Page Blocks sit at the heart of the print features of Terrain Navigator Pro. A Page Block is simply an area of the final page that is set aside for a special purpose. Each Page Block has its own shape and properties, and can be one of nine types: Artwork, Compass, Legend, Map, Overview, Profile, Scale, Summary, and Text.

Adjusting the Map & Working with Grids

Of all the various types of Page Blocks, the Map Page Block is the most important. (After all, that is what you are creating and using within Terrain Navigator Pro - a map.) Use the Map Page Block properties to adjust precisely how the map appears on the finished page.

Printing Layers and Layer Information

Layers are anything added on top of the base map. Some layers (such as markers, routes, and tracks) you create yourself. Others are included as supplemental data sets for Terrain Navigator Pro. Regardless of where they came from you can include them on your printed maps and published images.

Multi-Page Maps

Terrain Navigator Pro can be used to print a large map area - larger than the paper sizes supported by your printer. When printing across multiple pages, these printed papers can be fastened together to create a map of any proportion.

Creating a Legend

A *Legend* or Map Key is used to indicate what the various symbols on the map mean. A Legend consists of a table with one or more items, such as a piece of text (such as a title), a symbol denoting a marker or waypoint, a line such as a track or route, or a filled area. Use the Legend Page Block Properties to add new items to the Legend table and format them to the desired appearance.

Adjusting Your Printer Settings

Terrain Navigator Pro can send its maps to a wide variety of printers (including virtual printers, such as PDF files.) Because each printer has unique characteristics, such as the type of papers it can print to, there are controls to specify these various options.

Formatting and Positioning Page Blocks

Page Blocks are the heart of Terrain Navigator Pro's unique ability to create customized pages for print and export. Because of the flexibility of these features, special controls are available for precise positioning of Page Blocks.

Publishing a Map as a Document, Email, PDF, or Image

In the world of the "paperless office", more and more documents are being viewed and stored electronically - rather than relying on the printed page. These electronic documents take a variety of forms including email, PowerPoint presentations, word processing documents, and PDF files. Terrain Navigator Pro contains a unique set of features that make publishing maps onto a virtual page a snap.

Templates

Templates are a set of stored settings that can be applied to your printed or exported map image. Basically, every option specified in the Properties, Pages, and Printer/File tabs can be saved as a template and recalled for future use. For example, if you have a basic report format that you use often, you can set up a template with these settings and open that template when you wish to print that style of report.

Quick Print

The *quick print* command provides a shortcut to your most common printing task. By default, it prints the map area shown on the screen (filled out to the margins on your printer.) However, it can also be used to perform a variety of printing tricks when used with Templates.

Notes:

A variety of page formats and sizes are available. Large-format plotters can be used to print full-size USGS quads at the same scale as the originals.

Some older laser printers may have difficulty printing a full map at their highest quality setting. This is because printing a full-page graphic is very taxing on a printer's memory. If this should occur, set the printer properties to print at a lower quality (or DPI) setting. If necessary, contact your printer's manufacturer to find out how much memory your particular printer model requires in order to print a full-page graphic.

In order to be consistent between 1:24,000- and 1:25,000-series maps, and to ensure that adjacent maps align properly, all 1:25,000-series maps are printed at 1:24,000 scale (when scale is set to 100%).

Use the **Sizing** slider in the Map page block Properties to adjust the relative size of the markers, routes, labels and other layers on the printed map. This is especially useful when changing the scale/zoom of the map.

Printing of Aerial Photos (or any map that is downloaded from the Internet) requires that the entire map/photo be completely downloaded for the printed page to be constructed. If the maps/photos are cached or copied to the hard drive, this process will be optimized. However, if one or more photos have not been cached or copied, there will be a delay of several minutes between the time the Print button is pressed and when the finished page is printed during which the photo (or photos) are downloaded.

Page Blocks

What are Page Blocks?

Page Blocks sit at the heart of the print features of Terrain Navigator Pro. A Page Block is simply an area of the final page that is set aside for a special purpose. Each Page Block has its own shape and properties, and can be of several types. For example, the map itself is a Page Block, but there are a wide variety of different types.

Types of Page Blocks

The nine types of Page Blocks are:

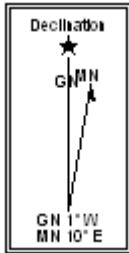
Artwork



The *Artwork Page Block* allows you to add a logo, picture, or other graphic element to your map. Any .JPG or .BMP image can be placed on the map page, and sized appropriately. In addition, the artwork can be rotated to match the orientation of the map.

Any number of *Artwork Page Blocks* can be included on the finished map.

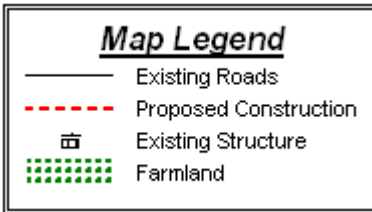
Compass



The *Compass Page Block* consists of various types of compass rose styles. Select the one that best matches your needs and size the page block appropriately. An optional feature allows a magnetic north alignment grid to be superimposed over any of the compass roses.

Only a single *Compass Page Block* can appear on the finished map.

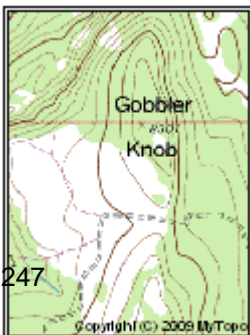
Legend



A *Legend* or Map Key is used to indicate what the various symbols on the map mean. Terrain Navigator Pro features a very powerful *Legend Page Block* that makes creating these a snap. The Legend Editor can automatically search your map or Project for all the various symbols you've created - and populate the legend table accordingly. In addition, options are present for adjusting the font and style of each line in the map key.

Only a single *Legend Page Block* can appear on the finished map.

Map



The most significant Page Block is that of the *Map*. Maps of various types and sources can be included. The map's position and scale is specified, along with an optional grid. Layers can be superimposed over the map - and sized appropriately.

While only one *Map Page Block* can be included on a printed page, a second map can be included as an *Overview*. This allows two independent maps to be included on a single printed page.

For more information on manipulating the *Map Page Block*, see the topic: *Adjusting the Map and Working with Grids*.

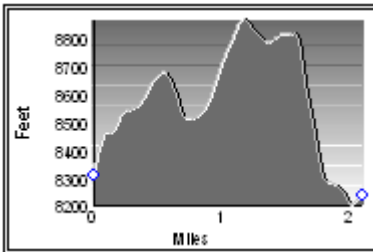
Overview



The *Overview Page Block* is typically used to display a less-detailed view of the same area as the main map *Page Block*. A box appears in the overview that indicates the area covered by the main map. However, there is no hard and fast link between the main Map and Overview *Page Blocks*. Thus, maps of different types, sizes, and scales can be included.

Only a single *Overview Page Block* can be included on a page.

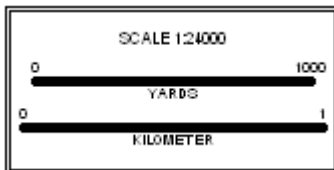
Profile



Terrain Navigator Pro features a powerful 3-D engine that is ideal for computing profile and line of sight displays. These images can be included as a *Profile Page Block*. Various options for selecting the desired object to profile, as well as the color and style of the image can be found. Alternatively, a line of sight graph can be generated - including offsets for basic tower computations.

Only a single *Profile Page Block* can be included on a page.

Scale



The *Scale Page Block* indicates the scale of the main map. Three scale bars are available (in various choices of English and Metric units) that illustrate the distance covered by the map area.

Only a single *Scale Page Block* can be included on a page.

Summary

Map Name: COTTONWOOD PASS	Scale: 1 inch = 2,000 ft.
Print Date: 11/23/09	Horizontal Datum: NAD27

A *Summary Page Block* is used to create a table of various statistical fields about the map. These fields can include the name of

the base map, its coordinates, the date the map was printed, and more than 50 other items.

A *Summary Page Block* automatically formats the fields specified into columns. Fields are updated dynamically - and will change as the map scale, type, etc. is adjusted.

Only a single *Summary Page Block* can be included on a page. However, any number of *Text Page Blocks* can be included - and the same fields can be added dynamically to a *Text Page Block*.

Text

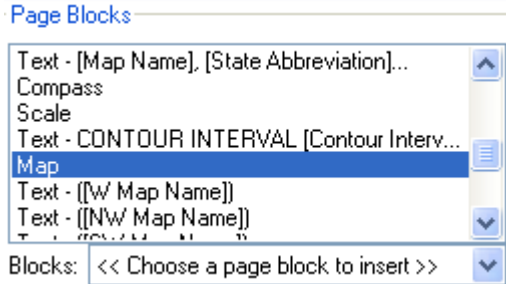
Map of the proposed railroad restoration project. Prepared by Associates & Sons Surveying, inc. Printed: 11/24/09 for the WW&F Railway, inc.
--

Text Page Blocks are like *Summary Page Blocks* in that they can contain fields of dynamic text. However, a *Text Page Block* can also have any text desired included. For example, you can create a text block to identify the map, or the firm that

created it - and also add the date printed dynamically. Save this as a Template, and you have a simple way to add style to any map.

Any number of *Text Page Blocks* can be included on the finished map.

How to Add a Page Block to the Page



In the Print window, open the **Properties** tab. The top portion of the Properties tab indicates the Page Blocks that are currently featured on the page. To add a new Page Block to the list, click the down arrow to the right of <<Choose a page block to insert>>. A list of available Page Blocks types will open - selecting one will add it to the list, and place it on the page.

Use the buttons to place blocks on top of each other. For example, to have a text block appear superimposed over the map, the text block must be higher in the list than the map.

Use the button to delete the selected Page Block.

How to Position a Page Block

The easiest way to change the size and location of the Page Block is simply to grab it and move it with the mouse. The active Page Block will be surrounded by 8 control points (black boxes) with a 9th in the center of the block. While in the "ALL" zoom mode, these control points can be dragged at will to size, shape, and position any Page Block. When in the "1:1" or "2:1" zoom mode, hold the **Ctrl** and **Shift** keys down on the keyboard to drag the control points with the mouse - otherwise the whole page will shift in position within the Preview area.

There are many other ways you can position and manipulate Page Blocks. For more information, see the section titled: Formatting and Positioning Page Blocks.

Adjusting the Properties of a Page Block

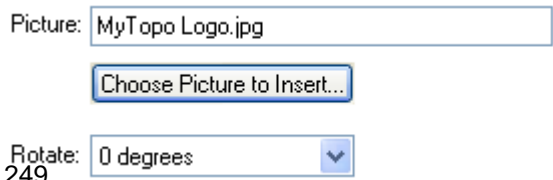
The Properties of each Page Block simply refer to the various settings and options that give control over how each Page Block is displayed. Some Properties are common among all types of Page Blocks; these include the frame style, color, and background. Most Properties, however, are unique to that Page Block type (although similar Page Blocks may include the same sorts of options.)



Common Properties: Frame Style, Color, and Background

A frame surrounds each Page Block. The *Style* of this frame can be set to various types and thicknesses. The *Color* applies not only to the outer frame, but to the overall appearance of the entire Page Block. Similarly, the *Background* (abbreviated *Bkg*) applies to the entire block as well. A background of **None** will set the block as transparent - allowing any Page Block underneath it to shine through. This is a very powerful feature that allows multiple Page Blocks to be stacked upon each other to create a complex page.

Artwork Properties



The properties of the *Artwork* Page Block consist of options to select the desired .JPG or .BMP image, and to rotate it to an angle that best matches the orientation of the finished page. Note that transparent image

backgrounds are not currently supported.

Compass Properties

Available compass styles:







- North Arrow (Thin in circle)
- USGS with Magnetic and UTM Grid Declination
- USGS with UTM Grid Declination
- USGS with Magnetic Grid Declination
- Compass Showing Cardinal Directions
- North Arrow (Thick)
- North Pointer
- Blank
- Compass Rose (4 pointed)
- Compass Rose (8 pointed)
- Compass Rose (16 pointed)

The *Compass* Page Block properties allow you to specify the style of the compass rose you wish to include on the finished page. Click on the desired style to select it - and the preview area will update accordingly. Remember to set the Background of the Page Block to **None** if you wish the map to shine through the compass - or to a color if you wish the Compass background to remain a solid hue.




Click **Include magnetic declination lines** to superimpose an alignment grid over the compass rose. This grid can be used to properly orientate a magnetic compass to the area depicted on the map.

Include magnetic declination lines


Legend Properties

	Railroad Station
	Major Landslide or Washout
	Bridge (Rebuilt)
	Bridge (to be rebuilt)
	WW&F Main Line (Rebuilt)
	WW&F Main Line (Abandoned)

Legends are key to understanding the symbology of a map. The *Legend* properties allow you to create detailed explanations of the layers that have been added to the base map.

Click <<Insert a new legend item>> to add a new line to the legend table. Click the Edit button  to change the various options for that legend line. Use the   buttons to shift each legend line's position in the table.

Items: <<Insert a new legend item>>

Use the  button to remove the selected Legend line, or to delete all of the entries in the Legend table.

For more information on how to best use these features, see the section titled: Creating a Legend.

Map Properties

Map

Source: Seamless

Type: 1:

Center:

Format:


The properties of the *Map* Page Block allow you to specify the Type (scale) of the base map (or photo) along with the scale at which you wish the map to be printed. The scale can be specified as a ratio (as in 1:24000) or as a percentage of actual size. Press *Update* to reflect any changes made to the size/scale in the Preview area.

The *Center* point of the map can be adjusted as well as the *Format* of the coordinate system used within this map page.

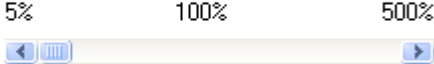
Since the Map Page Block is the most important, you'll find many more details in the section titled: Adjusting the Map and Working with Grids. You also may wish to investigate Printing Layers and Layer Information and Multi-Page

Maps.

Overview Properties

Type:  The properties of the *Overview Page Block* are used to set the source map Type for the inset overview area and to scale that map to the desired size. Any map type available in your copy of Terrain Navigator Pro can be used in the Overview page block, including Aerial photos.


5% 100% 500%

Resize to: 

Include map outline

Check **Include map outline** to draw a box in the Overview Page Block that indicates the area covered by the main Map Page Block. Note that the color of this overview is determined by the Color specified for the entire Page Block (including the Frame.)


Profile Properties

Available layers:  For *Profiles*, the properties allow you to select which layer to include in the Profile Page Block. Select the type of layer you wish to Profile and a list of layers of that type will appear. Choose the desired layer from the list and the Preview area will update the Profile Page Block with the selected layer.

Show as Line of Sight

Press **Center Map on this Layer** to automatically resize and rescale the main Map Page Block to fully show the layer being profiled. This is a very handy way to ensure that an entire route is displayed on the page.

Formatting options _____

Color:  With gradient

Include track points/waypoints

Include labels on nearby summits and waypoints

Include detailed profile information

So long as the layer is not looped (as a closed polygon) the Line of Sight option is available. This will graph a straight line between the start point and the end point of the layer being profiled, specifically to illustrate if the point of origin is visible from the destination. If desired, an accommodation can be made to adjust for the earth's curvature - if the line of sight is many miles long.

Additional options are available for customizing the Profile Page Block. The *Color* can be chosen and a background gradient applied. Blue dots representing individual points along the route or track being profiled can be shown or hidden. Major peaks and route waypoints can be labeled. A table of various statistics can also be appended to the bottom of the Profile Page Block.

For even greater control of the Profile graph, press **Profile Offset Options**. This window allows you to specify the range of the Vertical Axis, as well as accommodations for vertical offsets when viewing a line of sight graph. (This can be used to illustrate the presence of a tower, for example. For more information, check out the topics on Profile: Adjusting Vertical Axis and Line of Sight: Height Offsets.

Scale Properties

Include ratio of map scale

Top scale bar:

Middle scale bar:

Bottom scale bar:

Left justify all scale bars




The properties of the *Scale* Page Block allows you to select the types of scale bars to include in the finished print. The ratio of map scale will title the scale bar with an accurate measurement of the map's coverage area, such as 1:24,000. There are 3 scale bars available in a variety of english and metric units - however these units may change automatically to match the coverage area displayed. Finally, an option exists to move the scale bars to the left side of the Scale Page Block - which can come in handy when space is at a premium.

Summary Properties

Fields included:

Map Name
Print Date (MM/DD/YY)
Scale (Inch)
Map Center
Horizontal Datum (Short)

Fields:

The *Summary* Page Block contains a multi-column display of various information about the map. Use the Properties section to lay out the fields you wish to include. To add a new field, click <<Choose field to include in summary>> and select the desired field. It will be inserted in the table of included fields. Use the   buttons to shift each summary field's position in the table. Use the  button to remove the selected field from the summary.

Controls are available that allow any font on the system to be used in the Summary Page Block. Common font styles (bold, underline, etc.) are also provided. Note that the font chosen applies to the entire Summary Page Block - not just a selected field. However, you can use multiple Text Page Blocks (see below) when advanced formatting is desired.

Produced by MyTopo Terrain Navigator
Topography based on USGS [Base Map Scale] Maps
[Horizontal Datum] Datum ([Horizontal Datum Short])
[Projection] Projection

Fields:

Text Properties

The properties of the *Text* Page Block allow verbiage of any kind to be added to the finished page. Simply type whatever text you wish to appear in the edit area, and the map will update accordingly.

One special feature of the Text Page Block is the ability to insert dynamic fields into the text area. For example, if you wanted to note the scale of the base map within the text, you could enter 'The base map scale is: [Base Map Scale]'. Since there are more than 50 keywords that Terrain Navigator Pro will recognize, a shortcut is provided to insert these fields into the text. Click <<Choose a field to insert>>, select one from the list, and the keyword will added automatically to the text window. (Keywords are always enclosed within [square brackets].)

Formatting options are also included. Controls are available that allow any font on the system to be used in the Text Page Block. Common font styles (bold, underline, etc.) are provided. Additional options allow the horizontal and vertical alignment of the text within the Page Block to be specified. Note that these font and alignment options apply to the entire Text Page Block - not just a selected field. However, you can use multiple Text Page Blocks when advanced formatting is desired.

Unlike most other Page Blocks, multiple Text Page Blocks can be included on a finished map page. These allow complex formatting to include fonts of different sizes and styles to be included anywhere on the printed page. Text Page Blocks can also be placed on top of each other - or other page blocks to create useful displays featuring graphics and a wide variety of information. For examples of this, be sure

to check out the sample Print Templates included with Terrain Navigator Pro.

Saving Page Blocks as Templates

Once you've created your map masterpiece, you may want to save your layout of Page Blocks (including a Legend table) for future use. The Templates feature allows you to accomplish this - by storing your settings for later use. To save your Page Blocks as a Template, open the **Templates** tab, type a **Name** for the Template and press **Save**. The Template will now appear in the list of Available Templates for later recall.

For detailed instructions on how to make the most of Templates, please see the topic titled Templates.

Adjusting the Map & Working with Grids

The Map Page Block

Of all the various types of Page Blocks, the Map Page Block is the most important. (After all, that is what you are creating and using within Terrain Navigator Pro - a map.) Thus, the Map Page Block properties contains various controls that allow you to adjust precisely how the map appears on the finished page.

The initial (default) template includes a Map Page Block. However, should you accidentally delete that block, use the Page Block control to insert it back again. Note that only a single Map Page Block can be included on the finished page. However, a second map can be created as an Overview Page Block; see the section on Page Blocks for more details.

Moving the Map in the Preview Area

The Map Page Block is unique in that when the area of the block is clicked and dragged with the mouse, the map area moves - as opposed to the Page Block itself. This is important to realize as it allows precise control of the map area featured in the finished page. However, the control point (black box) in the center of the map remains active, and can be used to drag the entire page block to a new position on the finished page. Likewise, the control points along the edge of the map can be used to resize the map Page Block - exposing more or less of the map area.

For very precise placement, change the Zoom of the Preview area. In the 1:1 or 2:1 zoom, the entire page is shifted when the mouse is clicked and dragged. However, you can hold the Ctrl and Shift keys down and the map area will shift accordingly. For more tips on placing Page Blocks - including additional keyboard shortcuts - see the topic: Formatting and Positioning Page Blocks.

Map Properties

Map

Source: Seamless

Type: 1:

Center:

Format:

The properties of the *Map* Page Block allow the Type, Scale, Center Point, and Coordinate Format to be specified for printing. Initially, these will approximate the area being viewed before the Print window is opened. However, you may want to print the same area on different types of maps, with different scales, or various other options. Therefore, you can indicate the map type, scale, etc. without having to close the Print window.

Map Type

The Map Type is the type (and scale) of the map within the Map Page Block. Use the drop arrow to select from the available maps and photos. A map type of *No Map* is also available. This allows you to create a map consisting of only layers that have been placed on the map.

The Map Type is drawn from the Edition of the Map (or Photo) currently being displayed. Thus, if you are viewing a specific photo edition (instead of the Standard Edition) in the main map window, you will be previewing (and printing/publishing) that same edition.

Click Seamless to stitch adjacent maps together. Or, turn off the Seamless option so that the margin around the map area is revealed.

Map Size and Scale

Use the Size option to change the scale (or zoom) of the map. The scale can be specified in a ratio (such as 1:24,000.) Alternatively, use the drop down arrow to change to Percent, and the size will be reflected as a percentage of the original map scale. (For example, a 1:24,000 map at 50% is a 1:48,000 scale

map.) This can be used to adjust the overall area that you wish to cover with the map Page Block. Once you have changed the scale, press Update for those changes to take effect in the preview area.

Map Center Point

If you wish to manually specify the coordinates of the center of the map in the Map Page Block, press the button and enter in the desired coordinates. The button also displays the current center point of the map. To specify the coordinates in a different format (such as UTM rather than Lat./Long.) select the desired format from the list below before pressing the Center button.

Coordinate Format

There are various formats available to indicate a specific spot on the Earth. Use the Format down arrow to change between them. For example, switching between Lat./Long. (Degrees/Minutes/Seconds) to UTM. The datum can also be specified. The Coordinate Format setting effects the various text blocks, rulers and grids, and other areas on the printed page where the coordinates are displayed.

There are two special coordinate formats: <<Same as Alternate>> and <<Same as Primary>>. These are used in conjunction with Templates to ensure that the template uses the coordinate format specified in Preferences, as opposed to one that is stored within the template.

Layer Properties

Layers — The *Layer* properties section controls how layers (such as markers, routes, tracks, etc.) are formatted on the finished page.

Print layers:

Sizing: Check **Print layers** to include layers on the finished page. Press **Select Layers** to specify the particular type(s) of layers to include. The **Sizing** control is used to resize the layers to match the scale of the map being printed.

Conform layer size to map scale

For more detailed instructions, please see the topic: Printing Layers and Layer Information.

Grid Properties — It is often useful to superimpose a grid pattern over the map image. These can be used to measure distances or delineate coordinates. The grids can be of various thickness - use the drop down list to select the desired effect. On topographic maps, the color of the grid is specified by the overall color for the Map Page Block. When a grid is superimposed on an Aerial Photo, it is always white. If a Township/Range grid is used, the colors are red (township), blue (section), and green (parcel.)

Grid

Grid style:

There are several grid *Styles* available:

- **No Ruler:** Select this option when you do not wish a ruler (along the map edge) nor a grid pattern to appear on the map.
- **Ruler Only:** Notates the current coordinate system in a ruler along the map edge without superimposing a grid pattern on the map itself.
- **Ruler with default grid:** Notates the current coordinate system in a ruler along the map edge while superimposing a grid pattern on the map.

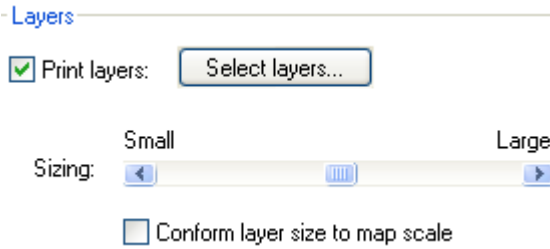
- **Ruler with custom grid:** Notates the current coordinate system in a ruler along the map edge while superimposing a grid pattern on the map that is determined by the Custom Grid Preference/Layer.
- **Custom grid (magnetic):** Superimposes a grid system based upon the Magnetic Grid Preference/Layer. This is very helpful when using the map with a magnetic compass.

In areas where Township/Range (PLSS) grids are used, different grid styles are available:

- **No Grid:** Select this option when you do not wish a grid pattern to appear on the map.
- **Default Grid:** Superimposes a Township/Range grid system upon the map.
- **Default Grid with text:** Superimposes a Township/Range grid system upon the map - notated with the township, section, and parcel designations.
- **Custom grid (magnetic):** Superimposes a grid system based upon the Magnetic Grid Preference/Layer. This is very helpful when using the map with a magnetic compass.

Printing Layers & Layer Information

Printing Layers



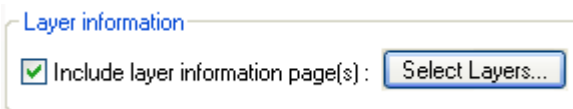
To include a layer on a printed map, open the **File** menu, select **Print**. In the **Properties** tab, select the **Map Page Block**. Check **Print layers** to include layers on the map, uncheck **Print layers** if you do not want to include any layers. If you want to include only some of your layers, press **Select layers** to indicate the types of layers you wish to show or hide. An ☒ in the list of layers indicates that the layer will be included on the final printed or saved image.

As with the on-screen map display, there are options to size the layers to match the proportions of your page. The **Sizing** controls allow you to specify how large or small all layers will appear on the screen. Drag the sizing slider to make all layers appear smaller or larger. As you slide this control, the preview area will change accordingly.

You can also **Conform the layer size to match the map scale**. This allows the layers to retain their dimensions regardless of the zoom level or scale of the map. For a detailed explanation on how this works, refer to Layer Size/Visibility.

Printing Layer Information

To print information about specific layers (such the position of each marker, route statistics, area of a closed/looped track or route, etc.), use the Information Tool to open the statistics for that layer, and press **Print**.



You may also wish to include such information along side any printed map. Terrain Navigator Pro features an easy way to accomplish this. Open the **Print** window, select the **Pages** tab and check **Include layer**

information pages(s). If you want to include statistics for only some of your layers, press **Select layers** to indicate the types of layers you wish to include information on. An ☒ in the list of layers indicates that information for the layer will be included on the final printed or saved image.

After the map image is printed, additional page(s) will be printed with information about all layers selected. (Note that if many layers are included in the print area, including the Layer Information may require several pages of printed text.)

Multi-Page Maps

Printing Maps Spanning Several Pages

Terrain Navigator Pro can be used to print a large map area - larger than the paper sizes supported by your printer. When printing across multiple pages, these printed papers can be fastened together to create a map of any proportion.

Number of map pages

Wide: Tall:

Layer information

Include layer information page(s) :

The second tab in the Print window allows you to specify the number and format of pages included as part of the print. Initially, the pages will be 1 wide and 1 tall. However, you can construct a wider map by increasing the number of pages wide the finished layout will be. Likewise, a taller map is constructed by increasing the corresponding setting. The resulting pages can then be stitched together to form a single

large map.

Note that as the number of map pages increase, the amount of memory and computer power needed to process the page increases as well.

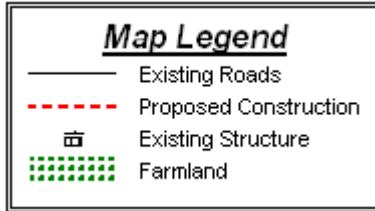
Printing Layer Information Pages

You may also wish to include statistics about the Layers included on the map. By checking *Include layer information pages(s)* additional blocks of text will be printed on subsequent pages featuring the name, coordinates, and other vital statistics for each layer. If you want to include statistics for only some of your layers, press Select layers to indicate the types of layers you wish to include information on. An in the list of layers indicates that information for the layer will be included on the final printed or saved image.

After the map image is printed, additional page(s) will be printed with information about all layers selected. (Note that if many layers are included in the print area, including the Layer Information may occupy several pages of printed text.)

Creating a Legend

What is a Legend?



A *Legend* or Map Key is used to indicate what the various symbols on the map mean. A Legend consists of a table with one or more items, such as a piece of text (such as a title), a symbol denoting a marker or waypoint, a line such as a track or route, or a filled area. Use the Legend Page Block Properties to add new items to the Legend table and format them to the desired appearance.

To create a Legend Page Block, open the Properties tab and choose Legend from the list of page blocks to insert. Note that only one legend Page Block can be included in the final printed page. For more information, please see the topic on Page Blocks.

Creating a Legend Automatically

Automatically create legend items _____

Include entire Project

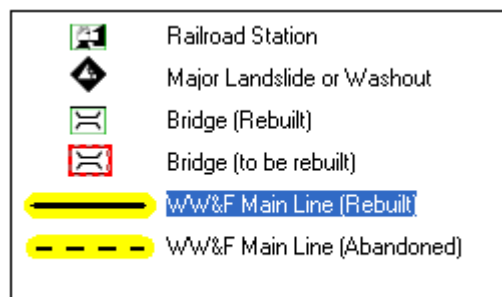
The easiest way to populate a Legend table is to ask Terrain Navigator Pro to create one automatically. Press the **Generate Legend** button. Terrain Navigator Pro will examine the map area for any markers, routes, or tracks

and attempt to create a table that reflects their usage and name. If you wish, the legend generator can look beyond the current map area to include any layers found within the active Project. Check Include entire Project to expand the search area for suitable Legend items.

When you elect to create an automatic legend, each *unique* layer will have an entry in the legend table. However, if two or more objects appear the same, but have different names, only one entry will be entered into the table. For example if your map area contains three markers: two red cars and one blue car, pressing Generate Legend will yield a table with two entries: one red car and one blue car. (It is assumed that the two red cars have the same meaning in the map key.)

Layers that have been hidden using the Layer Size/Visibility window will be omitted from the automatic legend generation process. Moreover, some layers (such as Range/Bearing Lines, Range Rings, and Overlays) will not have entries generated during the automatic legend generation process.

The Legend Table



Once the Legend has been generated with the basic information about the layers in the area, use the Legend table to modify the entries to suit your needs. To modify an entry, select it from the list of legend items and press the Edit button: . (See the section on Creating a Legend Manually, below, for detailed instructions on how to edit the individual properties of each Legend item.) Use the buttons to shift each legend line's position in the table. Use the button to remove the selected Legend line, or to delete all of the entries in the Legend table.

Items:

As changes are made in the Legend table, the Legend Page Block in the preview area will also update accordingly.

To add a new item to the Legend table, select the type of item desired from the drop down list. The item will be added to the table and can be edited manually (see below) to refine its


properties.

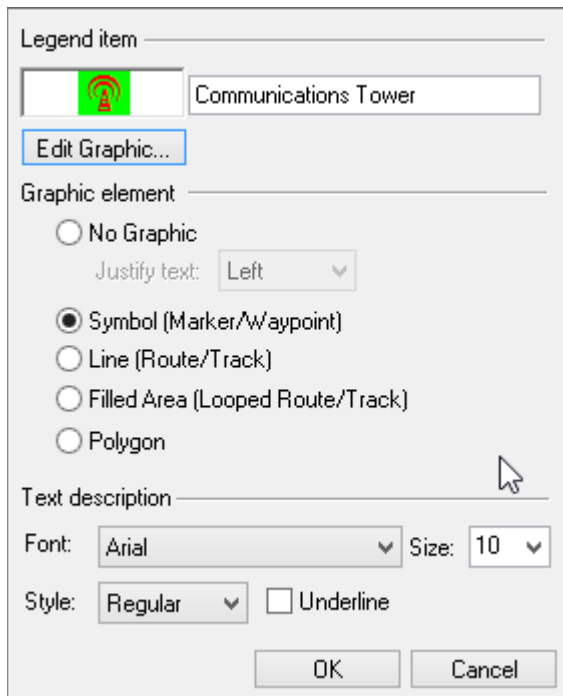


The legend items can be shifted in position within the Page Block. Use the Horizontal alignment to move all the items to the left, center or right of the Page Block. Likewise, the Vertical alignment can position the items in the top, center, or bottom of the Page Block.

Choose *Select Overall Font* to change the font used, as well as its size and style. This will effect all items in the Legend table - unless a specific font style has been applied to a particular item. (See below.)

Creating a Legend Manually

To create a Legend without using the Automatic Legend Generation feature described above, simply insert the desired Legend items into the Legend table by selecting them in the drop down list. This can also be used to add additional items to a table that has already been automatically created. Then, use the Edit button  to modify the selected entry. (Alternatively, double-clicking on the entry within the Legend table will also open the edit window for that Legend item.)



Each Legend item consists of two elements, a Graphic and a Text description. The graphic is either a symbol, line, filled area, or polygon that represents an object on the map. The text description verbally illustrates what that object represents.

In the Legend item section, press the Edit Graphic button under the preview to change the graphic. If the graphic element is set to Symbol (Marker/Waypoint) you will be presented with a number of symbol options. These can include the symbols found in the optional Emergency Management SymbolPack. When the graphic element is set to Line (Route/Track), line options will appear for specifying the color, style, etc. The Filled Area (Looped Route/Track) is for creating a rectangular shape with Fill Options that designate some amount of land coverage.

There is a special type of Legend item that contains No Graphic. This is a text-only item that can be used to add a title above any group of Legend items. The text can be positioned horizontally in the row centered, left justified, right justified, or aligned with the text description of Legend items that contain graphics.

The text description for any Legend item can be formatted with a unique font, size, and style. These settings can be changed independently of the overall font set for the entire Legend Page Block. Thus, different classes of items can have special formatting, section titles can have larger text, etc.

Templates and Legends: Saving a Legend

Once you have created a legend, you may wish reuse it sometime again. Use the Templates feature of Terrain Navigator Pro to save the entire page layout for later use.

Adjusting Your Printer Settings

The Printed Page Layout

Terrain Navigator Pro can send its maps to a wide variety of printers. Because each printer has unique characteristics, such as the type of papers it can print to, there are Printed Page Layout controls to specify these various options.

The screenshot shows a dialog box titled "Printed page layout". It contains the following controls:

- Printer:** A dropdown menu showing "Brother MFC-8440 USB on ED-MUSIC" with a downward arrow. Below it are two buttons: "Properties..." and "Image on Printer" with a downward arrow.
- Paper size:** A dropdown menu showing "Letter" with a downward arrow, followed by a text box containing "8.5"x11".
- Orientation:** A dropdown menu showing "Portrait" with a downward arrow, followed by a text box containing "Copies: 1".

To access the Printed Page Layout, open the **Printer/File** tab of the print window. You can also access these same controls by opening the **File** menu and choosing **Print Setup**.

Here, you can select the **Printer** (real or virtual - see below) that you wish to send the finished map to. Press **Properties** to adjust any settings that are specific to your printer (such as print quality, custom paper sizes, etc.) The **Paper Size**, **Orientation** (portrait or landscape), and number of **Copies** can also be

specified.

An advanced option allows you to specify how the printed page should be **imaged**. Three options are available: *Image on PC (High DPI)*, *Image on PC (Low DPI)* and *Image on Printer*. Generally, we recommend choosing *Image on Printer*, as most printers have sufficient processing power to construct the printed page using their internal settings. However, some printers (notably those that rely on PostScript) do not always image the printed page properly. Thus, if your printer does not yield an exact duplicate of the Print Preview, you may wish to try *Image on PC (High DPI)*. Unfortunately, *Image on PC (High DPI)* requires a great deal of memory and computer power to process - especially on large pages. In those cases, try *Image on PC (Low DPI)* as a reduced DPI will not require as much memory to process (although there may be some loss of quality.)

Previewing the Printed Page Layout

The preview area of the print window can display either the Printed Page Layout or the Exported Image Layout. To preview the Printed Page Layout, press the **Print Preview** button. This toggles the preview area between the settings specified in the Printed Page Layout and the Exported Image Layout sections of the **Printer/File** tab of the print window. This feature is provided to allow the same templates, flexibility, and controls to be used regardless of whether you are printing a map to a printer, or publishing it to an image for use in a report, email, or other document.

Using a Virtual Printer

Not all printers are physical hardware devices. Some can be in software - creating the "paperless office". The most common virtual printer you may encounter is a *PDF Printer driver*. This special software allows you to "print" into a PDF document that can be saved, emailed, shared with others, or printed later. For more information on how to do this with Terrain Navigator Pro, check out Publishing Maps as Documents, Emails, PDFs, or Images.

Besides PDF drivers, there are other virtual printers. These include FAX software, the Microsoft XPS Document Writer, the Microsoft Document Image Writer, and a myriad of others. In any case, select these virtual printers from the **Printer** list, and the map will be sent to these software drivers for saving (or FAX transmission, etc.)

Printed Page Layouts and Templates

Templates are a set of stored settings that can be applied to your printed or exported map image. Because templates can be applied to any printer or page size, the selected options for the Printed Page Layout are not retained within the template. This gives much greater flexibility to templates; allowing them to operate regardless of the specific printer installed on the system.

Formatting & Positioning Page Blocks

Moving Page Blocks

Page Blocks are the heart of Terrain Navigator Pro's unique ability to create customized pages for print and export. Because of the flexibility of these features, special controls are available for precise positioning of Page Blocks. These tools are found in the **Pages** tab of the print window.

Margins

Margins

Top: inches Bottom: inches

Left: inches Right: inches

Show margin lines in preview

Warn when blocks are placed outside of margin

The most basic tool available for positioning Page Blocks is the **Margins** control. This allows you to specify the area of the overall printed page. While Page blocks can still be placed outside of the margins, a dashed line will guide you to their presence (as long as **Show margin lines in preview area** is checked on.)

You may also elect to be notified in the event that a Page Block has erroneously strayed across the margin boundary. By turning on **Warn when page blocks are placed outside of margin** you will receive a notice before printing (or exporting) begins whenever this has occurred.

Alignment of Page Blocks

Block Alignment

Align to inch grid when moving page blocks

Show printable area lines

Warn when blocks are outside printable area

When positioning a Page Block, it is sometimes useful to have them 'snap' to an imaginary grid. With the **Alignment of Page Blocks** control, you can specify whether or not you wish to use this grid, as well as the spacing between each snapping point. For example,

when this control is set to align to a .25 inch grid when moving page blocks, each time a Page Block is moved or resized, it will snap to the nearest quarter-inch. This is particularly useful when aligning many blocks on the same page.

Two additional controls are available to assist with the placement of page blocks. **Show printable area lines** adds a light gray line at the edge of the printable area for the selected printer. Most printers have a small area along the boarder of every page that can not be printed upon - due to the internal mechanics of the printer. This guideline indicates the maximum extent of the printed page. (If no gray line appears, the currently selected printer does not have any non-printable area. Also, most virtual printers and export formats do not have a non-printable area.) To be notified whenever a page block occupies a non-printable area, click **Warn when page blocks are outside printable area**.

Manually Setting Page Block Positions and Sizes

Page Blocks

Available blocks: ▼

From top: inches Height: inches

From left: inches Width: inches

Lock from movement

Maintain aspect (Keyboard shortcut: Ctrl key)

Keep square (keyboard shortcut: Shift key)


(Use Ctrl + Shift to move/resize blocks when zoomed in)


While you are free to drag around any Page Block into any position you desire using the mouse in the preview area, sometimes very precise control is needed. Use **Page Block positions and sizes** to specify exact measurements for each Page Block.

To use this control, select a Page Block from the list of Available blocks, or click on the block in the Preview area. The distance from the top and left is shown as well

as the block's height and width. These values can be changed at will.

There are two special buttons available to assist in positioning the Page Block:

Center Vertically:  which automatically centers the selected Page Block between the top and bottom of the page.

Center Horizontally:  which automatically centers the selected Page Block between the left and right sides of the page.

There are three controls to prevent accidental adjustment of each Page Block. Check **Lock from movement** to restrict movement of the Page Block in the preview area. When Lock from movement is checked, the mouse cursor will show a padlock when attempting to reposition a locked Page Block. Also, it is not possible to move the Page Block with the keyboard, or by typing in values for the position and size.

Use **Maintain aspect** and **Keep square** to prevent the size of the Page Block from becoming an odd shape. These are especially useful for a Page Block containing Artwork or a Compass Rose.

Positioning Page Blocks with the Keyboard

Whenever a Page Block is selected in the preview area, you can use the keyboard to make minor adjustments to its position. The arrow keys (up, down, left, and right) will nudge any page block (so long as it is not locked from movement) in the desired direction. This nudging is not affected by the align to grid feature - making precise placement possible without being constricted to the overall formatting grid.

When a Page Block is selected in the preview area, you can grab the control points to resize it. However, by holding the Ctrl key, the aspect ratio will be maintained, regardless of how the mouse is dragged. Likewise, hold the Shift key and the Page Block will remain in a square shape. These shortcuts work regardless of the zoom level of the preview area. Thus, whether you are at All, 1:1 or 2:1, you can resize any Page Block by clicking and dragging it with the Ctrl or Shift key depressed.

When zoomed in, you may want to change the position of the Page Block. Press both the Ctrl and Shift keys to select and move any Page Block. The exception for this is the Map Page Block, which will scroll as you reposition the mouse. However, you can grab the center control point (the black dot in the center of the map) to position the Map Page Block wherever you wish (so long as Ctrl-Shift is also depressed.)

Publishing Maps as Documents, Emails, PDFs, or Images

Exporting (Saving) an Image vs. Printing

In the world of the "paperless office", more and more documents are being viewed and stored electronically - rather than relying on the printed page. These electronic documents take a variety of forms including email, PowerPoint presentations, word processing documents, and PDF files. Terrain Navigator Pro contains a unique set of features that make publishing maps onto a virtual page a snap.

The Exported Image Layout

Exported image layout

Save as type: JPEG file

Show image after export

Dimensions (inches)

Width: 8.500 in. Height: 11.000 in.

DPI: 600.00

Dimensions (pixels)

Width: 5100 Pixels Height: 6600 Pixels

To access the Exported Image Layout, open the **Printer/File** tab of the print window. This allows you to specify the type of image you wish to save, along with its dimensions.

Terrain Navigator Pro allows map images to be saved in four formats: JPEG (.JPG), TIFF (.TIF), Keyhole Markup Language (.KMZ) and Windows Bitmap (.BMP). JPEG produces the smallest file size, but can have lower quality than the other formats. TIFF and Windows Bitmap are of high quality - TIFFs having a smaller file size than Bitmaps. .KMZ files are geo-referenced, and can be viewed in applications such as Google Earth. Most applications will accept any of these formats, but some are better suited for various tasks, as described below.

The dimensions of an image can be expressed in both inches and pixels. If your ultimate goal is to create an image of a specific size, it is helpful to think of it in terms of inches. Note that each inch consists of some number of dots - which is specified in Dots Per Inch (DPI). A DPI of 96 is common for an image that is displayed on a computer monitor. The base DPI of USGS maps displayed in Terrain Navigator Pro is 160; for aerial photos, it is 305. Thus, to get a higher quality image, you may wish to consider increasing the DPI accordingly.

When expressed in pixels, there is no DPI for the dimension - since the size is not constrained by how many pixels will fit in an inch - this is determined by the computer monitor's settings. Changing the dimensions in inches (and the DPI) will change the corresponding dimensions in pixels. Likewise, adjusting the pixels will also adjust the number of inches the finished map image will be.

Previewing the Exported Image Layout

The preview area of the print window can display either the Printed Page Layout or the Exported Image Layout. To preview the Exported Page Layout, press the **Export Preview** button. This toggles the preview area between the settings specified in the Printed Page Layout and the Exported Image Layout sections of the **Printer/File** tab of the print window. This feature is provided to allow the same templates, flexibility, and controls to be used regardless of whether you are printing a map to a printer, or publishing it to an image for use in a report, email, or other document.

Showing the Image after Export

Check 'Show image after export' to automatically open the viewing application associated with the image type being saved. For example, if 'Show image after export' is checked when a .KMZ file is created, Google Earth will open automatically and display the map image that was just created.

Exported Image Layouts and Templates

Templates are a set of stored settings that can be applied to your printed or exported map image. Because templates can be applied to any printer or page size, the selected options for the Exported

Image Layout are not retained within the template. This gives much greater flexibility to templates; allowing them to operate regardless of the specific format the image is to be saved as.

Examples of Publishing Maps

Here are a few real-world examples of how you can publish your maps; saving them so that others who do not have Terrain Navigator Pro on their computer can see your work.

To Save a Map as an Image File:

1. Turn on the **Export Preview**.
2. Open the **Printer/File** tab. In the *Exported Image Layout* set the **Save file as type** to the desired format and set **Dimensions** to the desired size in Inches or Pixels.
3. Use the **Properties** and **Pages** tabs to create your map.
4. Once the map is to your liking, press **Export**. A window will pop up that allows you to save the image to a file in a folder you specify. The finished map will appear in that folder.

To Publish a Map in a Word Processing Document:

1. Follow the steps above to save the map as an image file. However, for best results in a word processor, choose *TIFF file* as the file type.
2. Once the map is **Exported**, start the word processor and open the document that you wish to place the map in.
3. Most word processors have an *Insert* menu or command button. **Insert** the picture from a file, specifying the .TIF file that was exported from Terrain Navigator Pro.
4. Save the word processing document with the map embedded in it.

To Email a Map to a Coworker or Friend:

1. Follow the steps above to save the map as an image file. However, for best results in most email applications, choose *JPEG file* as the file type.
2. Once the map is **Exported**, start the email application and start composing the email you wish to attach the map to.
3. Most email clients include a button or link to *Attach a file*. **Attach** the map to the email, specifying the .JPG file that was exported from Terrain Navigator Pro.
4. Send the email with the map attached to it.

To Include a Map in a Power Point Presentation:

1. Follow the steps above to save the map as an image file. However, for best results in a Power Point Presentation, choose *BMP file* as the file type.
2. Once the map is **Exported**, start the presentation software and open the slide that you wish to place the map in.
3. Most presentation software applications have an *Insert* menu or command button. **Insert** the picture from a file, specifying the .BMP file that was exported from Terrain Navigator Pro.
4. Save the presentation with the map embedded in it.

To Create a PDF File of a Map:

Follow these steps to create a PDF File:

1. Turn on the **Export Preview**. (Remember, PDFs are *exported*, not printed.)
2. Open the **Printer/File** tab. In the *Exported Image Layout* set the **Save file as type** to **PDF file** and set **Dimensions** to the desired size in Inches.
3. Use the **Properties** and **Pages** tabs to create your map.
4. Once the map is to your liking, press **Export**. A window will pop up that allows you to save the PDF file in a folder you specify. The finished map will appear in that folder as a .PDF Adobe Acrobat Document.

Once the PDF file has been 'exported', you can attach it to an email (as described above) or share as you would any other PDF Adobe Acrobat Document.

Note: "GeoPDFs" can not currently be saved by Terrain Navigator Pro. Terrain Navigator Pro exports its maps as standard PDF files.

Terrain Navigator Pro is also compatible with a variety of PDF creation software. If installed, these can be selected as printers in the list of available printers. Note, however, that to create PDF files using a PDF printer, the map should be *printed* (not exported) as you would print to a physical printer.

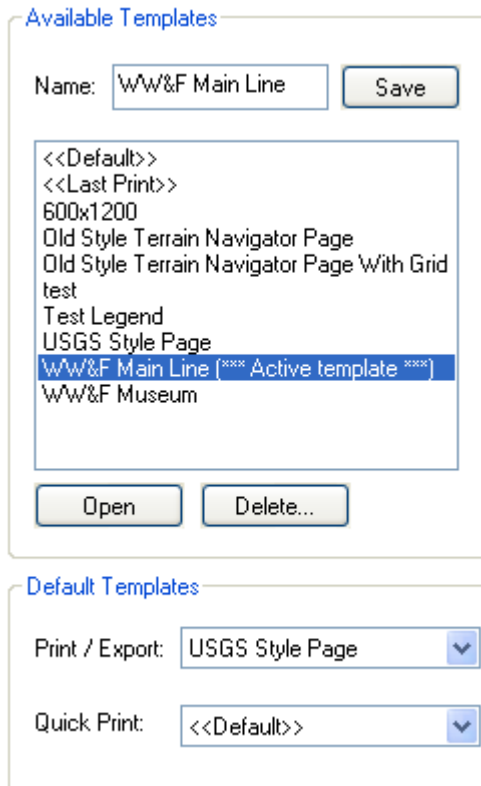
Templates

What are templates?

Templates are a set of stored settings that can be applied to your printed or exported map image. Basically, every option specified in the Properties and Pages tabs can be saved as a template and recalled for future use. For example, if you have a basic report format that you use often, you can set up a template with these settings and open that template when you wish to print that style of report.

Using the Templates Tab

The fourth tab in the Print window is for templates.



The top portion of the Templates tab indicates the templates that are available, and is used for opening (activating) a template, saving the current settings as a new template, or deleting a template from your collection. A number of sample templates are included with Terrain Navigator Pro. These can be opened, used, and edited as you wish.

To open a template to activate it for use, select the desired template in the list and press **Open**. Alternatively, you may double-click on the desired template to open it. As a convenience, the current tab will switch to Properties automatically, so that you may begin making adjustments to the various options. Once opened, the template will be listed as the "(***Active template***)" in the list of available templates and its name displayed at the top of the print window.

There are two special templates that are available. <<Default>> is the initial, simple template that features a map and scale bar. This option is useful to start a new template, or to reset the print window to its initial settings. <<Last Print>> is the template that was last used, regardless of whether or not it was saved. This can be helpful to set an initial template, then reuse it on subsequent prints or if you just want to keep the same print settings every time the print window is opened.

To save a group of settings to be used as a template, type a **Name** in the top of the *Available Templates* and press **Save**.

You can overwrite existing templates with new settings, as well. Note that if changes are made to a template after the template has been opened, these changes are NOT saved automatically. To save any changes made to the active template, select the "(***Active template***)" in the list of available templates and press **Save**.

To remove a template from the list of *Available Templates* that is no longer needed, click once on the name of that template in the list, highlighting it in blue, and press **Delete**. You will be asked to confirm this before proceeding, and templates in-use (either active, or set in *Default Templates*) must be de-activated before they can be deleted.

The bottom portion of the Templates tab indicate which template should be used when the print window is opened, or when the Quick Print operation is performed. For example, if there is a commonly-used template that you would like to open automatically whenever you print (or export an image), set the **Print / Export** default template to the desired template. Similarly, whenever a Quick Print is initiated, the template used can also be specified. If you want to use the original settings for either of these, select <<Default>>.

Note: Templates store the information to create the printed map image - not the map itself. Therefore, when you save a template, it will be applied to the current viewing area. Also, the map type and scale are not saved in the template - as those can be dynamically adjusted when creating your finished print. Finally, the printer used and its page settings (size and orientation) are also not kept within a template.

Template Files and Folders

Templates are stored in the following folder on your PC:
C:\ProgramData\Maptech\Terrain Navigator Pro\Templates

Template files contain the extension .TPL and can be freely shared between others who use Terrain Navigator Pro.

If your template contains embedded artwork (such as a logo) you may copy it to the Templates folder so that it is along side the template file. (Artwork is not embedded in the .TPL file.)

The <<Last Print>> Template

Use the <<Last Print>> template to load the print settings that were used the last time the print window was opened. If this is specified as the Print / Export template, any changes made during each print session will automatically be retained whenever the print window is restarted. Specify the <<Last Print>> template as the Quick Print template, and subsequent Quick Prints will use the settings last used in the print window. This is especially useful when you wish to print the same page layout over large geographic areas.

Objects not stored in a Template


There are a handful of items not retained within a Template file. These are usually specific to the print being created, or other dynamic items. For example:

- The position (coordinates) and scale of the map. Templates are to be used actively with the map type, scale, and location being used within Terrain Navigator Pro. Constraining these into a Template would greatly reduce their usefulness. If returning to an exact position is important before making a print, use the Bookmark feature to save the location.
- The printer used or its paper size or orientation. Instead these are taken from the current settings specified in the **Print Setup** menu or the **Printer/File** tab of the print window.
- If a Profile page block is used, the object of the profile will not be retained by the template. This is because there is no guarantee that the route (or other object) being profiled will be available or relevant to the new map area. The profile page block (and its various other settings) will be retained in the Template.
- If an Artwork page block is used, the path to the image file is retained, but not the image itself. If the image is moved from that path (or the template is used on another machine) the image will not appear.

Quick Print

The *quick print* command provides a shortcut to your most common printing task. By default, it prints the map area shown on the screen (filled out to the margins on your printer.) However, you can assign any print Template to respond to the quick print command. This allows ready access to any page layout of your design.

There are three ways to perform a Quick Print:

- Open the **File** menu and choose **Quick Print**
- Press **<CTRL> Q**
- Use the quick print button  that appears on the toolbar when the toolbar occupies two lines; otherwise the quick print button will be hidden.

Setting a Quick Print Template

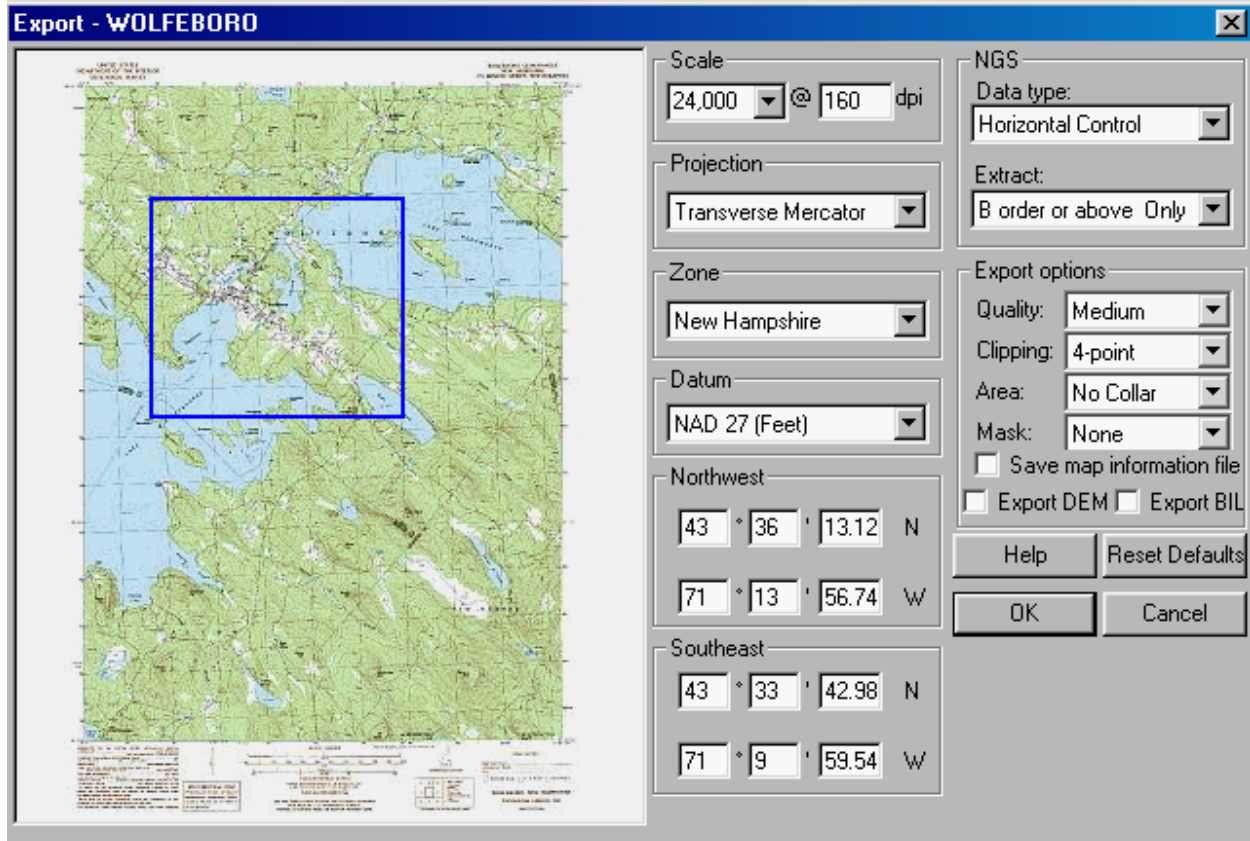
When Terrain Navigator Pro is first set up, the "default" quick print template is used. This will print the area in the vicinity of the current map (or aerial photo) being displayed. Open the **File** menu, use the **Print** command and open the Templates tab to specify a different action to take when the Quick Print is initiated. Several sample templates are included - and you can quickly and easily create your own.

If you so wish, you can set the Quick Print template back to its default behavior by selecting "<<Default>>" in the list of available Quick Print templates. Open the **File** menu, use the **Print** command and open the Templates tab to specify the <<Default>> template - and the map area shown on the screen (filled out to the margins on your printer) will be printed whenever a Quick Print is performed.

Exporting Maps

Exporting Maps

Terrain Navigator Pro lets you export map images for use in other programs, such as GIS (Geographic Information System) applications, desktop publishing, photo imaging, and site presentation. First, open the map that you want to export. Then, click **File > Export > Active Map** to select the area you need, and to specify export options. (**Note:** Layers are not included on the exported map image. To capture a map image with layers present, use the copy to clipboard command or use the Printing and Publishing features.)



Note: Occasionally, a map cannot be exported because your computer does not have enough memory. If this is the case, try exporting the map again, but do one or more of the following:

- *Select a lower dpi:* A lower dpi requires less memory to export. The optimal dpi for exported USGS topographic maps is 160. The optimal dpi for exported aerial photos is 305.
- *Select a higher scale:* Scale refers to how big the map image should be. A higher scale number covers more area but offers less detail. Therefore, an image with a higher scale requires less memory to export.
- *Select a smaller area to export:* Instead of exporting the entire map, export just a small portion. From the Area drop-down menu, select **User Defined**. Click and drag the blue box to outline the area to be exported. Click and drag on the corner of the box to shrink or expand the box.

Tip: In addition to single-map export, Terrain Navigator Pro also provides multiple-map export, which lets you apply the same settings to multiple maps and export them all with a single command.

File Types

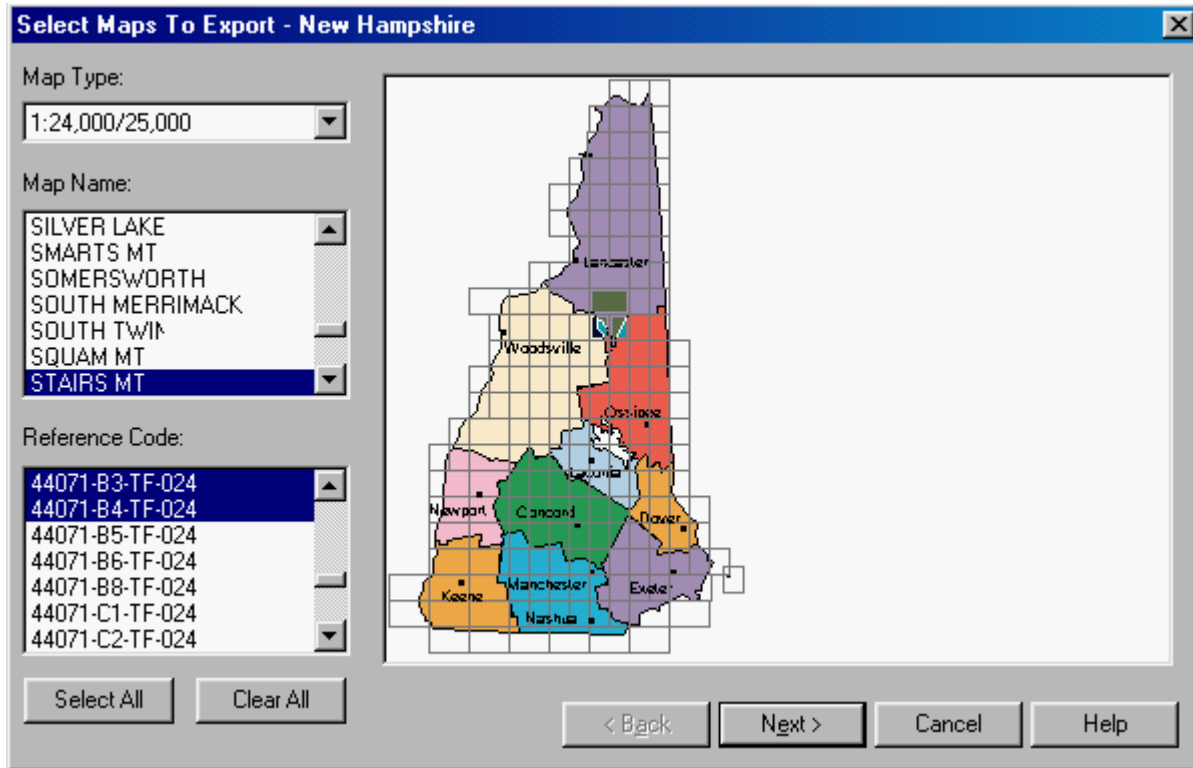
Once you have selected your export options, click **OK** to specify where you would like to save the exported map, and to specify a file type:

- **TIF – ArcView (TFW)**
For use with *ArcView* GIS software. This file format creates a TFW (World File) that retains georeferencing information, so that the map can be translated from one application to another. Note: Some versions of ArcGIS expect additional projection parameters - these should be supplied in the project within ArcGIS and match those chosen when exporting the map from Terrain Navigator Pro. Alternatively, a different file format (such as GeoTIFF) that contains the projection parameters can be specified.
- **TIF – MapInfo (TAB)**
For use with *MapInfo* GIS software. This file format creates a TAB file that retains georeferencing information, so that the map can be translated from one application to another.
- **TIF – GeoTIFF (Geographic)**
This TIFF (Tagged Information File Format) file retains georeferencing information within the GeoTIFF image file itself. Coordinate information is stored in a geographic system (latitude/longitude).
- **TIF – GeoTIFF (Projected)**
This TIFF (tagged information file format) file retains georeferencing information within the GeoTIFF image file itself. Coordinate information is stored in a projected system (e.g., meters or feet).
Note: This option is not available when Rectify is selected as the projection method.
- **TIF – TIFF 6.0**
Nearly identical to the older TIFF 4.0, but able to include more application-specific data along with the image. This format will not retain georeferencing information.
- **TIF – DRG (FGD)**
The TIF DRG format creates an FGD metadata information file (similar to those included with USGS Digital Raster Graphic maps). This file format may be imported into applications that support DRGs.
Note: Because USGS DRGs are always in Universal Transverse Mercator projection, the TIF DRG option is only available when projecting into UTM. Also, DRGs do not use the tiling option if specified in General Preferences.
- **TIF – TIFF 4.0**
An early version of the TIFF, this format is read by the vast majority of imaging programs. This format will not retain georeferencing information.
- **BMP – Windows Bitmap Format**
The standard image file for Windows environments. This format will not retain georeferencing information.
- **JPG – JPEG Format (JGW)**
This is a modern raster format and is compatible with most GIS applications including ESRI products, such as ArcPAD and ArcGIS. This file format creates a JGW file that retains georeferencing information, so that the map can be translated from one application to another.
- **HTM – HTML Format**
Produces a georeferenced map, saved as an HTML page with all supporting files. You can insert this page directly into your own website.

Multiple Map Export: Selecting Maps

In addition to the Export Active Map command, which exports a single map, Terrain Navigator Pro also provides a Multiple-Map Export option. This lets you export several maps at a time, applying the same parameters (projection, datum, etc.) to all of the maps. If you need several maps, batch export saves you time, since you only need to make your specifications once.

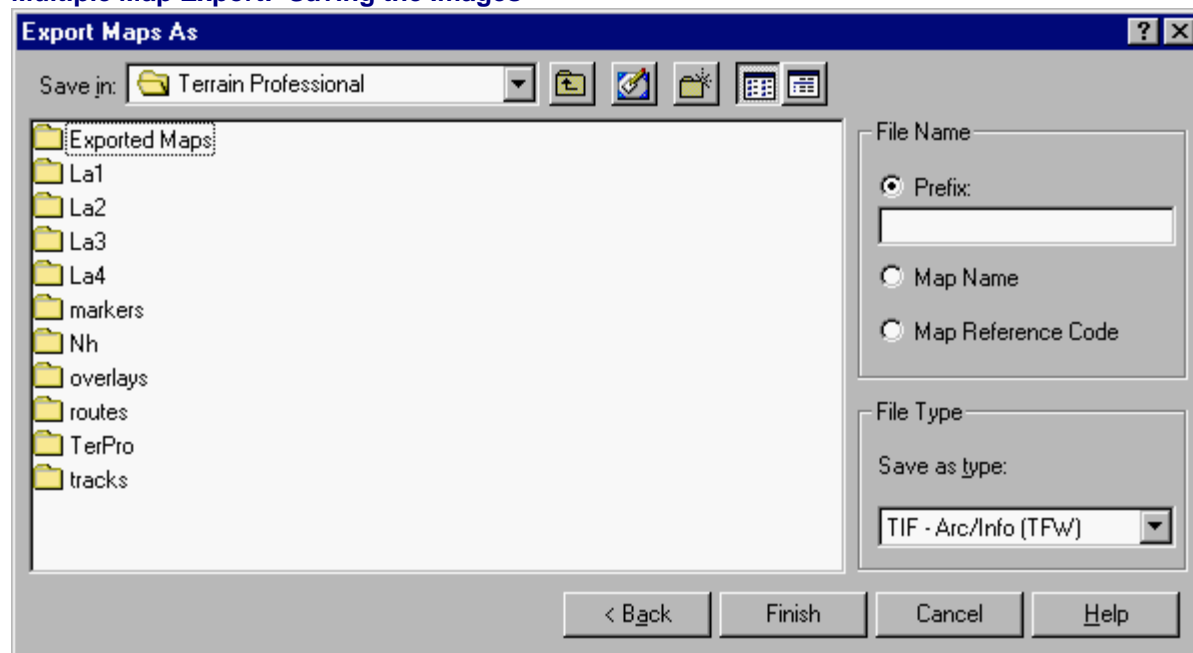
The first step in batch exporting is to tell Terrain Navigator Pro what maps you need. Click **File > Export > Multiple Maps**, and a map selection window appears.



Select the maps you wish to export by clicking on the state overview map grid, or by highlighting the map titles in either the **Map Name** or **Reference Code** list. There are also options to **Select All** (to export ALL the maps on the CD), and **Clear All** to clear your selections and start again.

When you have chosen the maps you need, click **Next** to apply your export specifications.

Multiple Map Export: Saving the Images



The third and final step in multiple-map export is to tell Terrain Navigator Pro how and where to save the exported images. Each map is saved in a separate file.

Note: Layers are not included on the exported map image. To capture a map image with layers present, use the Copy to Clipboard command.

Choose a location for the images. The location you specify is where ALL the files will be stored.

File Name

You have three options for naming the files:

- Assign a **prefix** to be used in naming the exported image files. Each map is saved in a separate file. The file name will start with whatever prefix you assign, followed by an underscore and a number, starting with '_01'.
- Use the official name of the USGS **map name** for each corresponding exported image file. Each map is named for the most notable or prominent feature contained in its coverage (a city or town, a summit, etc.).
- Use the map's unique **USGS reference code** as the file name for the exported image.

Note: If you choose to assign a Prefix, be careful about using the same prefix used in a previous Batch Export. In creating file names, Terrain Navigator Pro takes your prefix and adds a number after it, starting with 01. Therefore, if you use the same prefix often, you could end up with several files of the same name. Be careful not to save files in a location where other files of that name are stored, as this will overwrite the existing files.

File Type

Finally, choose a file type. The following file formats are supported:

TIF - ArcView (TFW)

For use with *ArcView* GIS software. This file format creates a TFW (World File) that retains georeferencing information, so that it can be translated from one application to another.

TIF - MapInfo (TAB)

For use with *MapInfo* GIS software. This file format creates a TAB file that retains georeferencing information, so that it can be translated from one application to another.

TIF - GeoTIFF (Geographic)

This TIFF (Tagged Information File Format) file retains georeferencing information within the GeoTIFF image file itself. Coordinate information is stored in a geographic system (latitude/longitude).

TIF - GeoTIFF (Projected)

This TIFF (Tagged Information File Format) file retains georeferencing information within the GeoTIFF image file itself. Coordinate information is stored in a projected system (e.g., meters or feet). **Note:** This option is not available when Rectify is selected as the projection method.

TIF - TIFF 6.0

Nearly identical to the older TIFF 4.0, but able to include more application-specific data along with the image. This format will not retain georeferencing information.

TIF - DRG (FGD)

The TIF DRG format creates an FGD metadata information file (similar to those included with USGS Digital Raster Graphic maps). This file format may be imported into applications that support DRGs. **Note:** Because USGS DRGs are always in Universal Transverse Mercator projection, the TIF DRG option is only available when projecting into UTM.

TIF - TIFF 4.0

An early version of the TIFF, this format is read by the vast majority of imaging programs. This format will not retain georeferencing information.

BMP - Windows Bitmap Format

The standard image file for Windows environments. This format will not retain georeferencing information.

JPG - JPEG Format (JGW)

For use with ESRI products, such as ArcPAD.

HTM - HTML Format

Produces a georeferenced map, saved as an HTML page. You can insert this page directly into your own website.

Completing the Multiple Map Export

Press **Finish** when you have finished making all your selections and you're ready to start exporting maps. The maps you chose will be exported one at a time and saved in separate files in the location you specified. The amount of time required to complete a batch export depends on the number of maps and the options you chose.

Press **Cancel** if you have changed your mind and don't want to export any maps right now. This window will close and you will have to start again from the beginning when you do decide to export maps.

Tip: If the time required to export your maps exceeds your expectations, try reducing the Quality setting specified on the 2nd page of the Export Wizard (Applying Specifications.) In general, it is not advised to use the **High** quality setting, unless a very significant reprojection is programmed to take place. (For example, applying an Alaska zone projection to a map geographically located in Florida.)

Copy Map to Clipboard

Open the **File** menu and choose **Export > Copy Map to Clipboard** to take the map area that you're viewing and place it on the Windows Clipboard. This image can then be pasted into most other Windows applications by selecting **Paste** from the application's Edit menu.

Copying to the clipboard is especially useful when you wish to use map images in a program that does not support the image formats available for exporting maps.

HTML Export

When you export a map, you may choose to save the exported image as an HTML page. This produces a single .HTM file ready for inclusion on web sites. The HTML page will show the georeferenced map image, with scroll bars so site visitors can adjust the map view and look around.

When you specify .HTM as your desired export format, you will see an additional Export Options window (above).

Page Title: The text you type here will be displayed beneath the map image.

Page Size: The dimensions, in pixels, of the window where the map image will be displayed. If necessary, scroll bars will be provided so users can bring other portions of the map into view.

Units: Determines the georeferencing information. These options will vary, depending on what projection settings you specified in the Export Map window. If you chose to *Rectify* the map image, you will be prompted to choose a coordinate system (**DMS**, **D M.MM**, **D.DDDD**). For all other reprojection methods, you may choose **Feet** or **Meters**, in which Northing and Easting measurements will be presented. In all cases, you may also choose **User Option**, which will place a control on the web page, letting the site user select his preferred measurement units. You may also choose **None**, which will result in a non-georeferenced map image.

Note: Layers will not be included in the exported image.

Importing/Exporting Data in Text File Format

Bookmarks

Importing and Exporting Bookmarks

Bookmarks may be exported and saved in text file format. The text files may be imported back into Terrain Navigator Pro. This lets you share your bookmarks with other users of Terrain Navigator Pro, keep different sets of bookmarks, etc.

To export bookmarks:

1. Open the map that contains the bookmarks.
2. Click **File > Export > Bookmarks**.
3. Select the bookmark(s) you wish to export and press Save.
4. Specify a location to store the bookmark text file, and press Save.

If you wish, you may combine multiple .BMX files into a single file. Or, you may create your own .BMX files, according to the Bookmark Text File Format.

To import bookmarks:

1. Open the map that will display the bookmarks.
2. Click **File > Import > Bookmarks**.
3. Browse to the location of the .BMX file you wish to import, and click **Open**.

Bookmark Text File Format (.BMX)

Terrain Navigator Pro allows the export of bookmarks to a text file. This enables you to share your bookmarks with others, to create archive copies, or to transfer the coordinate information to and from similar programs. While the file extension of these bookmark text files is .BMX, these are text files (sometimes referred to as ASCII files), and can be opened and edited with any text editor (including Windows *Notepad*.)

Importing Bookmarks

To import bookmarks that were previously exported, or bookmark text files that were created by hand or from another application, go to the **File** menu, choose **Import, Bookmarks** and select the file where the bookmarks are saved. Click **Open**. Terrain Navigator Pro imports your bookmarks, and displays a message telling you how many bookmarks were imported. The bookmarks will automatically appear in the Find Bookmarks menu item - ready for reference. For more information on this process, see Importing and Exporting Bookmarks.

Creating Bookmarks outside of Terrain Navigator Pro

If you have coordinate data that you would like to transfer to Terrain Navigator Pro for reference as a bookmark, you can create BMX files in Windows *Notepad*, *Wordpad*, or a word-processing program. Simply follow the format outlined below.

Transferring Bookmarks to Another Application

Use the Export Bookmarks command to save the desired bookmark(s) in the BMX format. Then, using the format outlined below, import this data into the desired application. This can include Microsoft Excel, or any application designed to read text files. However, the data may require some formatting or changes before obtaining the desired result.

Once you have created your bookmarks, click **File > Export > Bookmarks**, and highlight the bookmarks that you want to export. Set the location to where you want the file to be saved. If you choose to export several bookmarks at once, the resulting file will contain data for each bookmark.

The BMX File Format

Here is an example of Terrain Navigator Pro's BMX bookmark file format:

```
43.513888, -83.437475, "TOPO", 2400, 2.00, "The Adventures of Tom Sawyer", "Meet here with Becky"
33.187739, -97.282596, "AERIAL", 3600, 1.00, "Never Mind Nirvana", "Author: Mark Lindquist"
```

This shows two bookmarks. The first field is the latitude, then longitude, map type, scale, zoom, bookmark name, and bookmark note (comment.)

Latitude/Longitude

Coordinates are given in Latitude/Longitude in Decimal Degrees, WGS84 Datum. This format can not be changed. However, conversion to other formats (within Latitude/Longitude) is fairly straightforward.

Map Type, Map Scale, Zoom Level

The third field in the line indicates the type of map the bookmark was created on: TOPO or AERIAL. The scale and zoom levels the bookmark should be displayed at follow in the fourth and fifth fields.

Bookmark Name

The sixth field is the name of the bookmark as it appears in the Find, Bookmark menu.

Bookmark Notes

The last field in the line contains the notes for that particular bookmark. In our example, the first bookmark "The Adventures of Tom Sawyer" has the note "Meet here with Becky".

Notes:

- Be certain to press Return after the final line of your BMX file. And remember to save your text file with the extension .MXF.
- You must supply all latitude and longitude data in decimal degrees, and WGS84 datum.
- Do not include quotation marks (") within the name fields. Terrain Navigator Pro will not be able to import this correctly.

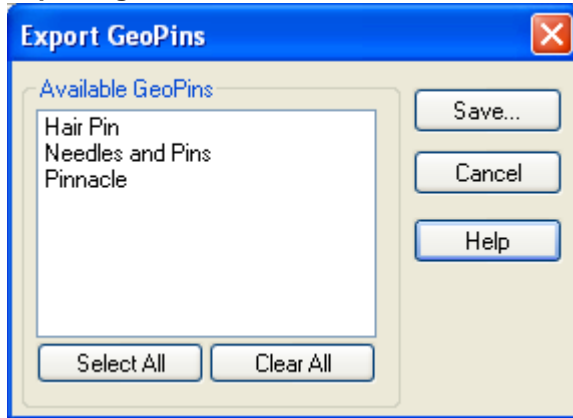
GeoPins

Importing GeoPins

Terrain Navigator Pro lets you export and import GeoPins in a text file format. These text files, with the file extension "GXF," may be shared with other users of MyTopo-compatible software, or you might keep your own GXF files as a backup copy of your GeoPin data. You can import GXF files into Terrain Navigator Pro, and the GeoPins contained in the GXF files will be placed on the maps.

To import an GXF GeoPin file, click **File > Import > GeoPins**. Browse to the location of the GXF file you wish to import. You may only import one GXF file at a time. Once the file is selected, click **Open**. A message will appear on the screen, telling you how many GeoPins were imported.

Exporting GeoPins



You can export selected GeoPins and save them in text file format elsewhere on your computer system. This is handy for sharing your annotations with other users of Terrain Navigator Pro-compatible software, for keeping backup copies of data, and for using data in other applications. Note that these exports only contain links to any data you have placed on your maps. The actual object the GeoPin is linked to is not included as part of this export.

To export GeoPins, open the **File** menu and choose **Export, GeoPins**. Highlight the GeoPin(s) you want to export. Select as many as you want (use your Control and Shift keys to highlight multiple GeoPins, or use the

"Select All" and "Clear All" buttons). When finished, click **Save**.

The next window will prompt you to name the file(s) containing the exported GeoPin(s), specify the directory location where you want to save the GeoPin(s) and press **Save**.

Copying GeoPins to the Clipboard

The Export GeoPins window also includes a **Copy to Clipboard** button (not shown above.) Use this to select multiple GeoPins at once to be copied to the Windows Clipboard. Once they have been placed on the clipboard, they can be pasted into any Windows application (as a text file, similar to the .GXF file format.) In addition, groups of GeoPins can be pasted into another Project. To switch to another Project, open the **Layers** menu and choose **Change Project**.

Notes:

- All exported GeoPins will be retained in Terrain Navigator Pro. Exporting GeoPins does not delete them from Terrain Navigator Pro. It creates another version of your GeoPin data, in a text file format.
- By exporting to the .GXF file format, you can share your route data with other Terrain Navigator Pro software users. To import .GXF data into Terrain Navigator Pro, open the **File** menu, choose **Import, GeoPins** and browse to the location of the GXF file. The imported GeoPins will be added to your GeoPin list and will appear on the maps.
- Exported GeoPins do not contain the actual object of the link. For example, if you have a GeoPin linked to a word processing document, exporting the GeoPin only saves the link to that document - the document itself is not embedded in the exported file.

GeoPin Text File Format (.GXF)

Terrain Navigator Pro allows the export of geopin layers to a text file. This enables you to share your geopins with others, to create archive copies, or to transfer the layer information to and from similar programs. While the file extension of these geopin text files is .GXF, these are text files (sometimes referred to as ASCII files), and can be opened and edited with any text editor (including Windows *Notepad*.)

Importing GeoPins

To import geopins that were previously exported, or geopin text files that were created by hand or from another application, go to the **File** menu, choose **Import, GeoPins** and select the file where the geopins are saved. Click **Open**. Terrain Navigator Pro imports your geopins, and displays a message telling you how many geopins were imported. The geopins will automatically appear in their proper locations on the map with their file links in tact. For more information on this process, see Importing GeoPins.

Creating a set of GeoPins outside of Terrain Navigator Pro

If you have documents or web pages that you would like to transfer to Terrain Navigator Pro for display as geopins, you can create GXF files in Windows *Notepad*, *Wordpad*, or a word-processing program. Simply follow the format outlined below.

Transferring GeoPins to Another Application

Use the Export GeoPins command to save the desired geopin(s) in the GXF format. Then, using the format outlined below, import this data into the desired application. This can include Microsoft Excel, or any application designed to read text files. However, the data may require some formatting or changes before obtaining the desired result.

Once you have created your geopin, click **File > Export > GeoPins**, and highlight the geopin that you want to export. Set the location to where you want the file to be saved. If you choose to export several geopins at once, the resulting file will contain data for all geopins selected.

When geopin layers are exported, the original geopins will still be retained on the map. All the geographic characteristics of the geopin will be preserved throughout the export process, so that when the geopin is imported into Terrain Navigator Pro, the basic structure will appear as it did when it was exported. However, some miscellaneous properties are not maintained by the .GXF format; these include its hide/show state and locked status. To share or archive the complete geopin layer, use a Terrain Project Archive.

Regardless of export format (.GXF or Terrain Project Archive) the target (document, image, web page, etc.) is NOT included in the file - only a link to that target. Thus, when sharing and archiving geopins - be sure to also include the target file.

The GXF File Format

Here is an example of Terrain Navigator Pro's GXF geopin file format:

```
43.51388888, -71.55004250, "My Travel Log", "Full account of our travels to this area", "C:\My
Documents\Trip Notes.doc"
33.18775890, -97.34572399, "Cool Web Site", "The web site of the author of this help document",
"http://www.spongeawareness.com"
```

This shows two geopins. The first geopin is named "My Travel Log" and is located at latitude 43.51388888 N, longitude 071.55004250 W. The first field is the latitude, then longitude, geopin name, geopin notes (comments), and the path to the target (either a file name path or a web address.)

Latitude/Longitude

Coordinates are given in Latitude/Longitude in Decimal Degrees, WGS84 Datum. This format can not be changed. However, conversion to other formats (within Latitude/Longitude) is fairly straightforward.

GeoPin Name

This is the name of the geopin which is commonly displayed underneath the geopin's icon.

GeoPin Notes

Any notes for that particular geopin. In our example, the first geopin "My Travel Log" has the note "Full account of our travels to this area".

Target File/Web Site

Finally, the last value in the line refers to the path to the document the geopin is linked to. In our example above, there is a second geopin which is linked to a web site. It uses the same format, except a URL is placed in the field that was used to describe the path to the Word document.

Notes:

- Be certain to press Return after the final line of your GXF file. And remember to save your text file with the extension .GXF.
- You must supply all latitude and longitude data in decimal degrees, and WGS84 datum.
- Do not include quotation marks (") within the name fields. Terrain Navigator Pro will not be able to import this correctly.
- Exported geopins do not contain the actual target of the link. For example, if you have a geopin linked to a word processing document, exporting the geopin only saves the link to that document - the document itself is not embedded in the exported file.
- Not all geopin properties are supported by the import/export formats. For example, the geopin's hide/show state and locked status. For a complete backup of all geopin layers use Terrain Project Archives.

Labels

Importing Labels

Terrain Navigator Pro lets you export and import labels in a text file format. These text files, with the file extension "LXF," may be shared with other users of MyTopo-compatible software, or you might keep your own LXF files as a backup copy of your Labels. You can import LXF files into Terrain Navigator Pro, and the labels contained in the LXF files will be placed on the maps.

To import an LXF label file, click **File > Import > Labels**. Browse to the location of the LXF file you wish to import. You may only import one LXF file at a time. Once the file is selected, click **Open**. A message will appear on the screen, telling you how many labels were imported.

Exporting Labels



You can export selected labels and save them in text file format elsewhere on your computer system. This is handy for sharing your annotations with other users of MyTopo-compatible software, for keeping backup copies of data, and for using data in other applications.

To export labels, open the **File** menu and choose **Export, Labels**. Highlight the label(s) you want to export. Select as many as you want (use your Control and Shift keys to highlight multiple labels, or use the "Select All" and "Clear All" buttons). When finished, click **Save**.

The next window will prompt you to name the file(s) containing the exported label(s), specify the directory location where you want to save the label(s) and press **Save**.

Copying Labels to the Clipboard

The Export Labels window also includes a **Copy to Clipboard** button (not shown above.) Use this to select multiple labels at once to be copied to the Windows Clipboard. Once they have been placed on the clipboard, they can be pasted into any Windows application (as a text file, similar to the .LXF file format.) In addition, groups of labels can be pasted into another Project. To switch to another Project, open the **Layers** menu and choose **Change Project**.

Notes:

- All exported labels will be retained in Terrain Navigator Pro. Exporting labels does not delete them from Terrain Navigator Pro. It creates another version of your label data, in a text file format.
- By exporting to the .LXF file format, you can share your route data with other MyTopo software users. To import .LXF data into Terrain Navigator Pro, open the **File** menu, choose **Import, Labels** and browse to the location of the LXF file. The imported labels will appear on the maps.

Label Text File Format (.LXF)

Terrain Navigator Pro allows the export of label layers to a text file. This enables you to share your annotations with others, to create archive copies, or to transfer the layer information to and from similar programs. While the file extension of these label text files is .LXF, these are text files (sometimes referred to as ASCII files), and can be opened and edited with any text editor (including Windows *Notepad*.)

Importing Labels

To import labels that were previously exported, or label text files that were created by hand or from another application, go to the **File** menu, choose **Import, Labels** and select the file where the labels are saved. Click **Open**. Terrain Navigator Pro imports your labels, and displays a message telling you how many labels were imported. The labels will automatically appear in their proper locations on the map, in their proper orientation. For more information on this process, see *Importing Labels*.

Creating a set of Labels outside of Terrain Navigator Pro

If you have annotations that you would like to transfer to Terrain Navigator Pro for display as labels, you can create LXF files in Windows *Notepad*, *Wordpad*, or a word-processing program. Simply follow the format outlined below.

Transferring Labels to Another Application

Use the Export Labels command to save the desired label(s) in the LXF format. Then, using the format outlined below, import this data into the desired application. This can include Microsoft Excel, or any application designed to read text files. However, the data may require some formatting or changes before obtaining the desired result.

Once you have created your annotations, click **File > Export > Labels**, and highlight the label that you want to export. Set the location to where you want the file to be saved. If you choose to export several labels at once, the resulting file will contain data for all labels selected.

When labels are exported, the original annotations will still be retained on the map. All the major characteristics of the label will be preserved throughout the export process, so that when the label is imported into Terrain Navigator Pro, the basic structure will appear as it did when it was exported. However, some label properties are not maintained by the .LXF format; these include its hide/show state and locked status. To share or archive the complete label layer, use a Terrain Project Archive.

The LXF File Format

Here is an example of Terrain Navigator Pro's LXF label file format:

```
43.51388888, -97.18917590, "Packing", 1, 80, 8000, 80, 40, 178, 48
33.18777525, -97.18967910, "Avery", 3, ff0000, ffffff, 115, -103, 78, 40
```

This shows two labels. The first label is named "Packing" and is located at latitude 43.51388888 N, longitude 97.18917590 W. The first field is the latitude, then longitude, label name, label style, text color, background color, horizontal offset, vertical offset, horizontal dimension, and vertical dimension.

Latitude/Longitude

The coordinates of the label's point of origin (or "tail" when using a balloon-style label) are given in Latitude/Longitude in Decimal Degrees, WGS84 Datum. This format can not be changed. However, conversion to other formats (within Latitude/Longitude) is fairly straightforward.

Label Name

This is the text of the label which is displayed within the label's borders.

Label Style

There are four label styles: 0 - Transparent, 1 - Square, 2 - Oval, 3 - Balloon.

Text Color/Background Color

The colors of the text in this label, and the color of the label's background, represented by its hexadecimal RGB value. Note that the background color for label style 0 - transparent is ignored.

light green	ff00
forest green	808000
yellow	ffff
light gray	c0c0c0
royal blue	ff0000
purple	800080
light purple	ff00ff
navy blue	800000
aqua	ffff00
light olive	8080
white	ffffff
green	8000
dark gray	808080
brown	80
black	0
red	ff
orange	80ff

Horizontal Offset/Vertical Offset

The x-y distance between the label's point of origin (the geographic position the label is pointing at) to the upper left hand corner of the actual label text.

Horizontal Dimension/Vertical Dimension

The x-y size of the label text area.

Notes:

- Be certain to press Return after the final line of your LXF file. And remember to save your text file with the extension .LXF.
- You must supply all latitude and longitude data in decimal degrees, and WGS84 datum.
- Do not include quotation marks (") within the name fields. Terrain Navigator Pro will not be able to import this correctly.
- Not all label properties are supported by the import/export formats. For example, the label's hide/show state and locked status. For a complete backup of all label layers use Terrain Project Archives.

Markers

Importing Markers

Terrain Navigator Pro lets you export markers into a text file format. These text files, whose file extension is "MXF," may be shared with other users of MyTopo-compatible software, or you might keep your own MXF files as a backup copy of marker data. You can import MXF files into Terrain Navigator Pro, and the markers contained in the MXF files will be placed on the maps.

To import an MXF marker file, click **File > Import > Markers**. Browse to the location of the MXF file you wish to import. You may only import one MXF file at a time, but each .MXF file may contain several markers. Once the file is selected, click **Open**. A message will appear on the screen, telling you how many markers were imported.

Other File Formats:

Terrain Navigator Pro can also import old marker files from TopoScout in the MTX file format. However, Terrain Navigator Pro cannot export markers back into MTX format.

GPX files (an XML-based format used by some web sites for coordinate sharing) can be imported into and exported from Terrain Navigator Pro.

Location (LOC files) can be imported into Terrain Navigator Pro, but cannot be exported from Terrain Navigator Pro. Location files are commonly used on geocaching sites to provide the location and name of a marker.

Notes:

- A single MXF file may contain data for more than one marker.
- Marker import is *backwards-compatible*, meaning that you may import MXF files from any previous version of any program in the Terrain Navigator Pro family of programs.
- Importing an MXF file that contains markers that are already present in Terrain Navigator Pro will result in duplicate markers.

Exporting Markers



You can export selected markers and save them in text file format elsewhere on your computer system. This is handy for sharing markers with other's who use Terrain Navigator Pro, for keeping backup copies of data, and for using data in other applications.

To export markers, open the **File** menu and choose **Export, Markers**. Terrain Navigator Pro will display a list of all your markers. Highlight the marker(s) you want to export. You can select as many as you want (use your Control and Shift keys to highlight multiple markers). When you have made your selections, click **Save**.

The next window will prompt you to name the file that contains your exported markers, and specify the directory location where you want to save it. You will also need to choose a format.

Available Export Formats

MXF

Our text-based format for track import/export. RXF files may be shared among users of Terrain Navigator Pro, or can be manipulated in a generic text format. A single .MXF file will contain all the markers you have selected for this export. See marker text file format (.MXF) for complete details.

SHP

ESRI's "Shapefile" format is used in a variety of GIS products. Because a "Shapefile" consists of multiple components, exporting in this format will result in multiple files. Markers exported into this file format can be imported into Terrain Navigator Pro as an Overlay. For additional details, see ESRI Shapefile Format.

GEN

UnGenerate file format, for use with ESRI ARC/Info and similar GIS applications. Markers exported into this file format cannot be imported back into Terrain Navigator Pro.

GPX

An XML-based format used by some web sites and handheld GPS units for coordinate sharing. Markers exported into this format can be imported back into Terrain Navigator Pro and into a variety of other navigation and mapping products. While this format can be used to store markers, routes, and tracks, only those markers selected in the export markers window will be saved; use Export, Active Project to save all the routes, tracks, and markers in the active Project into a single GPX file.

KML

An XML-based format used by some web sites and applications for coordinate sharing - most notably Google Earth. Routes exported into this file format can be imported into Terrain Navigator Pro as an Overlay. While this format can be used to store markers, routes, and tracks, only those markers selected in the export routes window will be saved; use Export, Active Project to save all the routes, tracks, and markers into a single GPX file.

Copying Markers to the Clipboard

The Export Markers window also includes a **Copy to Clipboard** button (not shown above.) Use this to select multiple markers at once to be copied to the Windows Clipboard. Once they have been placed on the clipboard, they can be pasted into any Windows application (as a text file, similar to the .MXF file format.) In addition, groups of markers can be pasted into another Project. To switch to another Project, open the **Layers** menu and choose **Change Project**.

Notes:

- Markers will be retained in Terrain Navigator Pro. Exporting markers does not delete them from Terrain Navigator Pro. It simply creates another version of your marker data in the desired file format.
- You can share your MXF data with other Terrain Navigator Pro users. To import markers into Terrain Navigator Pro, open the **File** menu, choose **Import, Markers** and browse to the location of the MXF file. The imported markers will be added to your marker list and will appear on the maps.
- Markers exported from Terrain Navigator Pro may be imported into many other popular navigation applications available from various other vendors. Simply select the file format used by that other program. (If you are not sure, GPX, KML and Shapefile are all very common formats.)
- Terrain Navigator Pro can import MXF files from any previous version of any of the Terrain Navigator Pro family of programs.

Marker Text File Format (.MXF)

Terrain Navigator Pro allows the export of marker layers to a text file. This enables you to share your markers with others, to create archive copies, or to transfer the layer information to and from similar programs. While the file extension of these marker text files is .MXF, these are text files (sometimes referred to as ASCII files), and can be opened and edited with any text editor (including Windows *Notepad*.)

Importing Markers

To import markers that were previously exported, or marker text files that were created by hand or from another application, go to the **File** menu, choose **Import, Markers** and select the file where the markers are saved. Click **Open**. Terrain Navigator Pro imports your markers, and displays a message telling you how many markers were imported. The markers will automatically appear in their proper locations on the map, in their proper color. For more information on this process, see *Importing Markers*.

Creating a set of Markers outside of Terrain Navigator Pro

If you have coordinate data that you would like to transfer to Terrain Navigator Pro for display as markers, you can create MXF files in Windows *Notepad*, *Wordpad*, or a word-processing program. Simply follow the format outlined below.

Transferring Markers to Another Application

Use the Export Markers command to save the desired marker(s) in the MXF format. Then, using the format outlined below, import this data into the desired application. This can include Microsoft Excel, or any application designed to read text files. However, the data may require some formatting or changes before obtaining the desired result.

Once you have created your marker, click **File > Export > Markers**, and highlight the marker that you want to export. Set the location to where you want the file to be saved. If you choose to export several markers at once, the resulting file will contain data for all markers selected.

When marker layers are exported, the original markers will still be retained on the map. All the geographic characteristics of the marker will be preserved throughout the export process, so that when the marker is imported into Terrain Navigator Pro, the basic structure will appear as it did when it was exported. However, some marker properties are not maintained by the .MXF format; these include highlights, background colors, and other minor details. To share or archive the complete marker layer, use a Terrain Project Archive.

The MXF File Format

Here is an example of Terrain Navigator Pro's MXF marker file format:

```
43.7601389, -071.2791299, "Cottonwood", "Cttnwd", "A very large tree", 800080, 137, 1232553219
43.7617236, -071.2917695, "Fencepost", "Fncpst", "", 808080, 14, 1215364342
43.7576237, -071.2888850, "Aspen", "Aspen", "", ffff, 137, 1219159129
43.7562457, -071.2777147, "Cache", "Cache", "", ff, 138, 1228487988
43.7576583, -071.2701399, "Tent site", "Tntst", "", ff, 111, 1208514934
```

This shows five markers. The first marker is named "Cottonwood" and is located at latitude 43.7601389 N, longitude 071.2791299 W. The first field is the latitude, then longitude, marker name, marker GPS name, marker notes (comments), marker color, symbol identifier, and time.

Latitude/Longitude

Coordinates are given in Latitude/Longitude in Decimal Degrees, WGS84 Datum. This format can not be changed. However, conversion to other formats (within Latitude/Longitude) is fairly straightforward.

Marker Name/GPS Name

This is the name of the marker which is commonly displayed next to the marker symbol. It is followed by the GPS Name which is often abbreviated to allow for compatibility with handheld GPS units.

Marker Notes

Any notes for that particular marker. In our example, the first waypoint "Cottonwood" has the note "A very large tree".

Marker Color

The color of this marker, represented by its hexadecimal RGB value:

light green	ff00
forest green	808000
yellow	ffff
light gray	c0c0c0
royal blue	ff0000
purple	800080
light purple	ff00ff
navy blue	800000
aqua	ffff00
light olive	8080
white	ffffff
green	8000
dark gray	808080
brown	80
black	0
red	ff
orange	80ff

Marker Symbol Identifier

This refers to the symbol that is drawn on the map. Refer to the Symbol Key for Marker & Route MXF/RXF Text Files for more information.

Time

The final field is the "UNIX time" that the marker was created. (UNIX time is measured in seconds from Jan. 1, 1970.)

Notes:

- Be certain to press Return after the final line of your MXF file. And remember to save your text file with the extension .MXF.
- You must supply all latitude and longitude data in decimal degrees, and WGS84 datum.
- Do not include quotation marks (") within the name fields. Terrain Navigator Pro will not be able to import this correctly.
- When importing layers into Terrain Navigator Pro, any parameters not specified within the MXF file will be taken from the Marker Preferences. For example, to import a marker with a yellow highlight, set the Marker Preferences to have a yellow highlight, then import the marker.
- MyTopo supplies a free utility, *FormatMXF*, which is designed to automatically correct common formatting mistakes in MXF files. To download the FormatMXF utility, visit <http://tnp.uservoice.com/knowledgebase/>.
- Also available for download from <http://tnp.uservoice.com/knowledgebase/> are a suite of utilities that will convert other popular formats of waypoint/marker information into .MXF files to be read into Terrain Navigator Pro. If you need a format that isn't listed here, check the web site for these handy conversion tools.

- Not all marker properties are supported by the import/export formats. For example, highlighting of markers, background colors, use within the Emergency Management SymbolPack, etc. For a complete backup of all marker layers use Terrain Project Archives.

Range Rings

Importing Range Rings

Terrain Navigator Pro lets you export and import range rings in a text file format. These text files, with the file extension "NXF," may be shared with other users of MyTopo-compatible software, or you might keep your own NXF files as a backup copy of your Labels. You can import NXF files into Terrain Navigator Pro, and the labels contained in the LXF files will be placed on the maps.

To import an NXF Range Ring file, click **File > Import > Labels**. Browse to the location of the NXF file you wish to import. You may only import one NXF file at a time. Once the file is selected, click **Open**. A message will appear on the screen, telling you how many range rings were imported.

Exporting Range Rings



You can export selected range rings and save them in text file format elsewhere on your computer system. This is handy for sharing your annotations with other users of MyTopo-compatible software, for keeping backup copies of data, and for using data in other applications.

To export labels, open the **File** menu and choose **Export, Range Rings**. Highlight the range rings(s) you want to export. Select as many as you want (use your Control and Shift keys to highlight multiple labels, or use the "Select All" and "Clear All" buttons). When finished, click **Save**.

The next window will prompt you to name the file(s) containing the exported range ring(s), specify the directory location where you want to save the range ring(s) and press **Save**.

Copying Range Rings to the Clipboard

The Export Range Rings window also includes a **Copy to Clipboard** button (not shown above.) Use this to select multiple Range Rings at once to be copied to the Windows Clipboard. Once they have been placed on the clipboard, they can be pasted into any Windows application (as a text file, similar to the .NXF file format.) In addition, groups of Range Rings can be pasted into another Project. To switch to another Project, open the **Layers** menu and choose **Change Project**.

Notes:

- All exported range rings will be retained in Terrain Navigator Pro. Exporting range rings does not delete them from Terrain Navigator Pro. It creates another version of your range ring data, in a text file format.
- By exporting to the .NXF file format, you can share your route data with other MyTopo software users. To import .NXF data into Terrain Navigator Pro, open the **File** menu, choose **Import, Range Rings** and browse to the location of the NXF file. The imported range rings will appear on the maps.

Range Ring Text File Format (.NXF)

Terrain Navigator Pro allows the export of range ring layers to a text file. This enables you to share your range rings with others, to create archive copies, or to transfer the layer information to and from similar programs. While the file extension of these range ring text files is .NXF, these are text files (sometimes referred to as ASCII files), and can be opened and edited with any text editor (including Windows *Notepad*.)

Importing Range Rings

To import range rings that were previously exported, or range ring text files that were created by hand or from another application, go to the **File** menu, choose **Import, Range Rings** and select the file where the range rings are saved. Click **Open**. Terrain Navigator Pro imports your range rings, and displays a message telling you how many range rings were imported. The range rings will automatically appear in their proper locations on the map, in their proper color. For more information on this process, see *Importing Range Rings*.

Creating a set of Range Rings outside of Terrain Navigator Pro

If you have coordinate data that you would like to transfer to Terrain Navigator Pro for display as range rings, you can create NXF files in Windows *Notepad*, *Wordpad*, or a word-processing program. Simply follow the format outlined below.

Transferring Markers to Another Application

Use the Export Range Rings command to save the desired range ring(s) in the NXF format. Then, using the format outlined below, import this data into the desired application. This can include Microsoft Excel, or any application designed to read text files. However, the data may require some formatting or changes before obtaining the desired result.

Once you have created your range ring, click **File > Export > Range Rings**, and highlight the range ring that you want to export. Set the location to where you want the file to be saved. If you choose to export several range rings at once, the resulting file will contain data for all range rings selected.

When range ring layers are exported, the original range rings will still be retained on the map. All the geographic characteristics of the range ring will be preserved throughout the export process, so that when the range ring is imported into Terrain Navigator Pro, the basic structure will appear as it did when it was exported. However, some range ring properties are not maintained by the .NXF format; these include hide/show state, locked status, and other minor details. To share or archive the complete range ring layer, use a Terrain Project Archive.

The NXF File Format

Here is an example of Terrain Navigator Pro's NXF range ring file format:

```
43.51388888, -97.06367865, "Wedding", "true love", 3, 2000, 0.200000, 0.100000, 2.000000, 808080
33.21882046, -97.06424940, "5 Golden", "and a partridge...", 5, 1000, 0.200000, 0.100000, 2.000000,
800000
```

This shows two range rings. The first range ring is named "Wedding" and is located at latitude 43.51388888 N, longitude 97.06367865 W. The first field is the latitude, then longitude, range ring name, range ring notes (comments), number of rings, type of ring, distance between rings, time between rings, speed between rings, and color of the range ring.

Latitude/Longitude

Coordinates are given in Latitude/Longitude in Decimal Degrees, WGS84 Datum. This format can not be changed. However, conversion to other formats (within Latitude/Longitude) is fairly straightforward.

Range Ring Name

This is the name of the range ring.

Range Ring Notes

Any notes for that particular range ring. In our example, the first range ring "Wedding" has the note "true love".

Number of Rings

The total number of rings drawn from the center point. Note that no more than 25 rings are allowed.

Range Ring Type

There are two range ring types: 1000 - Set By Distance, 2000 - Set By Time.

Distance/Time/Speed

Three related fields that determine the specific calculations for the range ring. The distance between each ring (in miles), the time between each ring (in hours), and the speed used to calculate the distance between each ring when the range ring type is set to 2000 - Set By Time (in MPH.)

Range Ring Color

The color of this range ring, represented by its hexadecimal RGB value:

light green	ff00
forest green	808000
yellow	ffff
light gray	c0c0c0
royal blue	ff0000
purple	800080
light purple	ff00ff
navy blue	800000
aqua	ffff00
light olive	8080
white	ffffff
green	8000
dark gray	808080
brown	80
black	0
red	ff
orange	80ff

Notes:

- Be certain to press Return after the final line of your NXF file. And remember to save your text file with the extension .NXF.
- You must supply all latitude and longitude data in decimal degrees, and WGS84 datum.
- Do not include quotation marks (") within the name fields. Terrain Navigator Pro will not be able to import this correctly.
- When importing layers into Terrain Navigator Pro, any parameters not specified within the NXF file will be taken from the Range Ring Preferences. For example, to import a range ring with a certain line width or style, set the Range Ring Preferences accordingly, then import the range ring.
- Not all range ring properties are supported by the import/export formats. For example, line widths, styles, hide/show status, etc. For a complete backup of all range ring layers use Terrain Project Archives.

Range/Bearing Lines

Importing Range/Bearing Lines

Terrain Navigator Pro lets you export and import range/bearing lines in a text file format. These text files, with the file extension "BXF," may be shared with other users of MyTopo-compatible software, or you might keep your own BXF files as a backup copy of your Range/Bearing Lines. You can import BXF files into Terrain Navigator Pro, and the Range/Bearing Lines contained in the BXF files will be placed on the maps.

To import an BXF Range/Bearing Line file, click **File > Import > Range/Bearing Lines**. Browse to the location of the BXF file you wish to import. You may only import one BXF file at a time. Once the file is selected, click **Open**. A message will appear on the screen, telling you how many Range/Bearing Lines were imported.

Exporting Range/Bearing Lines



You can export selected range/bearing lines and save them in text file format elsewhere on your computer system. This is handy for sharing your annotations with other users of MyTopo-compatible software, for keeping backup copies of data, and for using data in other applications.

To export range/bearing lines, open the **File** menu and choose **Export, Range/Bearing Lines**. Highlight the range/bearing line(s) you want to export. Select as many as you want (use your Control and Shift keys to highlight multiple range/bearing lines, or use the "Select All" and "Clear All" buttons). When finished, click **Save**.

The next window will prompt you to name the file(s) containing the exported range/bearing line(s), specify the directory location where you want to save the range/bearing line(s) and press **Save**.

Copying Range/Bearing Lines to the Clipboard

The Export Range/Bearing Lines window also includes a **Copy to Clipboard** button (not shown above.) Use this to select multiple range/bearing Lines at once to be copied to the Windows Clipboard. Once they have been placed on the clipboard, they can be pasted into any Windows application (as a text file, similar to the .BXF file format.) In addition, groups of range/bearing lines can be pasted into another Project. To switch to another Project, open the **Layers** menu and choose **Change Project**.

Notes:

- All exported range/bearing lines will be retained in Terrain Navigator Pro. Exporting range/bearing lines does not delete them from Terrain Navigator Pro. It creates another version of your range/bearing line data, in a text file format.
- By exporting to the .BXF file format, you can share your range/bearing line data with other MyTopo software users. To import .BXF data into Terrain Navigator Pro, open the **File** menu, choose **Import, Range/Bearing Lines** and browse to the location of the BXF file. The imported range/bearing lines will appear on the maps.

Range/Bearing Line Text File Format (.BXF)

Terrain Navigator Pro allows the export of range/bearing line layers to a text file. This enables you to share your range/bearing lines with others, to create archive copies, or to transfer the layer information to and from similar programs. While the file extension of these range/bearing line text files is .BXF, these are text files (sometimes referred to as ASCII files), and can be opened and edited with any text editor (including Windows *Notepad*.)

Importing Range/Bearing Lines

To import range/bearing lines that were previously exported, or range/bearing line text files that were created by hand or from another application, go to the **File** menu, choose **Import, Range/Bearing Lines** and select the file where the range/bearing lines are saved. Click **Open**. Terrain Navigator Pro imports your range/bearing lines, and displays a message telling you how many range/bearing lines were imported. The range/bearing lines will automatically appear in their proper locations on the map, in their proper color. For more information on this process, see *Importing Range/Bearing Lines*.

Creating a set of Range/Bearing Lines outside of Terrain Navigator Pro

If you have coordinate data that you would like to transfer to Terrain Navigator Pro for display as range/bearing lines, you can create BXF files in Windows *Notepad*, *Wordpad*, or a word-processing program. Simply follow the format outlined below.

Transferring Range/Bearing lines to Another Application

Use the Export Range/Bearing Lines command to save the desired range range/bearing line(s) in the BXF format. Then, using the format outlined below, import this data into the desired application. This can include Microsoft Excel, or any application designed to read text files. However, the data may require some formatting or changes before obtaining the desired result.

Once you have created your range ring, click **File > Export > Range/Bearing Lines**, and highlight the range/bearing line that you want to export. Set the location to where you want the file to be saved. If you choose to export several range/bearing lines at once, the resulting file will contain data for all range/bearing lines selected.

When range/bearing line layers are exported, the original range/bearing lines will still be retained on the map. All the geographic characteristics of the range/bearing line will be preserved throughout the export process, so that when the range/bearing line is imported into Terrain Navigator Pro, the basic structure will appear as it did when it was exported. However, some range/bearing line properties are not maintained by the .BXF format; these include hide/show state, locked status, and other minor details. To share or archive the complete range/bearing line layer, use a Terrain Project Archive.

The BXF File Format

Here is an example of Terrain Navigator Pro's BXF range/bearing line file format:

```
43.51388888, -96.90860026, "Home", "on the Range", 4000, 33.21926802, -96.90729325, 2.0,  
48.717550, 1.0, 2.0, 800000  
33.21855126, -96.90649612, "Free Chickens", "Ranger Rick", 1000, 33.21831705, -96.90785018, 2.0,  
258.318748, 1.0, 2.0, 800000
```

This shows two range/bearing lines. The first range/bearing line is named "Home" and has a start point located at latitude 43.51388888 N, longitude 96.90860026 W. The first field is the latitude of the start point, then longitude of the start point, range/bearing line name, range/bearing line notes (comments), type of range/bearing line, latitude of the end point, longitude of the end point, range between the two points, the bearing between the two points, time between the two points, speed between the two points, and color of the range/bearing line.

Latitude/Longitude of Start Point

The coordinates of the start point (or point of origin) are given in Latitude/Longitude in Decimal Degrees, WGS84 Datum. This format can not be changed. However, conversion to other formats (within Latitude/Longitude) is fairly straightforward.

Range/Bearing Line Name

This is the name of the range/bearing line.

Range/Bearing Line Notes

Any notes for that particular range/bearing line. In our example, the first range/bearing line "Home" has the note "on the Range".

Range/Bearing Line Type

There are three range/bearing line types: 1000 - Set End Coordinates, 2000 - Set by Distance, 4000 - Set by Speed and Time.

Latitude/Longitude of End Point

The coordinates of the end point are given in Latitude/Longitude in Decimal Degrees, WGS84 Datum. This format can not be changed. However, conversion to other formats (within Latitude/Longitude) is fairly straightforward.

Range/Bearing/Time/Speed

Four related fields that determine the specific calculations for the range/bearing line. The range (distance) between the start point and end point (in miles), the bearing (angle) between the start point and the end point (in degrees, referenced against true north), the time between the start point and the end point (in hours), and the speed used to calculate the distance between the start point and the end point when the range/bearing line type is set to 4000 - Set by Speed and Time (in MPH.)

Range/Bearing Line Color

The color of this range/bearing line, represented by its hexadecimal RGB value:

light green	ff00
forest green	808000
yellow	ffff
light gray	c0c0c0
royal blue	ff0000
purple	800080
light purple	ff00ff
navy blue	800000
aqua	ffff00
light olive	8080
white	ffffff
green	8000
dark gray	808080
brown	80
black	0
red	ff
orange	80ff

Notes:

- Be certain to press Return after the final line of your BXF file. And remember to save your text file with the extension .BXF.
- You must supply all latitude and longitude data in decimal degrees, and WGS84 datum.
- Do not include quotation marks (") within the name fields. Terrain Navigator Pro will not be able to import this correctly.

- When importing layers into Terrain Navigator Pro, any parameters not specified within the BXF file will be taken from the Range/Bearing Line Preferences. For example, to import a range/bearing line with a certain line width or style, set the Range/Bearing Line Preferences accordingly, then import the range/bearing line.
- Not all range/bearing line properties are supported by the import/export formats. For example, line widths, styles, hide/show status, etc. For a complete backup of all range/bearing line layers use Terrain Project Archives.

Routes

Importing Routes

Terrain Navigator Pro lets you export routes to text file format. These text files, with the file extension "RXF," may be shared with other users of MyTopo-compatible software, or you might keep your own RXF files as a backup copy of your route data. You can import RXF files into Terrain Navigator Pro, and the routes contained in the RXF files will be placed on the maps.

To import an RXF route file, click **File > Import > Routes**. Browse to the location of the RXF file you wish to import. You may only import one RXF file at a time (but each RXF file may contain several routes.) Once the file is selected, click **Open**. A message will appear on the screen, telling you how many routes were imported, along with the total number of waypoints.

Other File Formats:

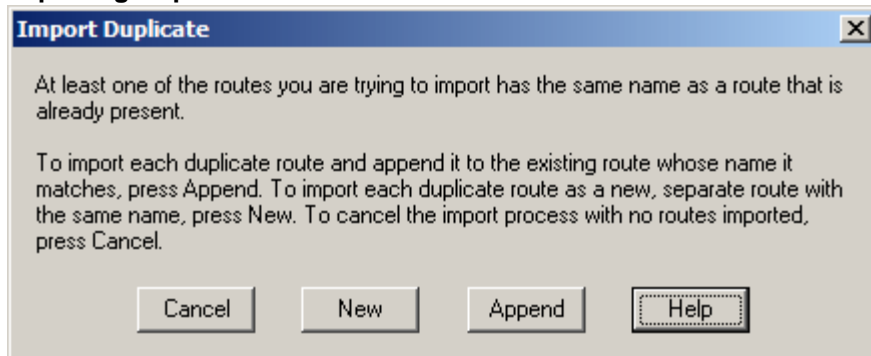
Terrain Navigator Pro can also import old route files from TopoScout in the RTX file format. However, Terrain Navigator Pro cannot export routes back into RTX format.

GPX files (an XML-based format used by some web sites and applications for coordinate sharing) can be imported into and exported from Terrain Navigator Pro.

Notes:

- You may experience difficulty if you attempt to import a route that already exists in Terrain Navigator Pro. If you try to import an RXF file that contains route data that already exists in Terrain Navigator Pro, you will receive a message explaining that the route could not be imported - and ask you how to proceed. This may happen if you created the RXF file as backup, but never deleted the original route from Terrain Navigator Pro.
- A single RXF file may contain data for more than one route.
- Route import is *backwards-compatible*, meaning that you may import RXF files from any previous version of any program in the Terrain Navigator Pro family of programs.

Importing Duplicate Routes



When you're importing routes from a text file or from a GPS, Terrain Navigator Pro will notify you if any of the routes you're importing has the same name as a route you already have. You will be presented with the following options:

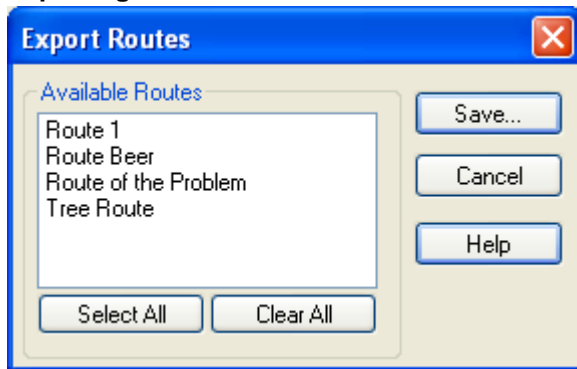
CancelThis will stop the importing process. Click Cancel if you want to examine your route data more closely before importing any more routes than you already have.

NewThis will take each duplicate route and save it on the map as a separate, new route with the same name as a route you already have.

Note: Generally speaking, it is not advisable to maintain more than one route with the same name, as this can cause confusion. It is recommended that you assign each of your routes a unique name.

AppendThis will import each duplicate route and attach it to the existing route that has the same name. The imported route will be attached to the end of the existing route. In other words, the first waypoint in the route you're importing will be attached to the last waypoint in the route already on the map.

Exporting Routes



You can export selected routes and save them in text file format elsewhere. This is handy for sharing routes with other users of Terrain Navigator Pro, keeping backup copies of data, and for using data in other applications.

To export routes, open the **File** menu and choose **Export, Routes**. Highlight the routes you want to export. To finish the export, click **Save**.

The next window will prompt you to name the file containing the exported routes, choose the location where you want to save the routes, and choose an export format.

Available Export Formats

RXF

Our text-based format for track import/export. RXF files may be shared among users of Terrain Navigator Pro, or can be manipulated in a generic text format. A single .RXF file will contain all the routes you have selected for this export. See route text file format (.RXF) for complete details.

SHP

ESRI's "Shapefile" format is used in a variety of GIS products. Because a "Shapefile" consists of multiple components, exporting in this format will result in multiple files. Routes exported into this file format can be imported into Terrain Navigator Pro as an Overlay. For additional details, see ESRI Shapefile Format.

GEN

UnGenerate file format, for use with ESRI ARC/Info and similar GIS applications. Routes exported into this file format cannot be imported back into Terrain Navigator Pro.

GPX

An XML-based format used by some web sites and handheld GPS units for coordinate sharing. Routes exported into this format can be imported back into Terrain Navigator Pro and into a variety of other navigation and mapping products. While this format can be used to store markers, routes, and tracks, only those routes selected in the export routes window will be saved; use Export, Active Project to save all the routes, tracks, and markers in the active Project into a single GPX file.

KML

An XML-based format used by some web sites and applications for coordinate sharing - most notably Google Earth. Routes exported into this file format can be imported into Terrain Navigator Pro as an Overlay. While this format can be used to store markers, routes, and tracks, only those routes selected in the export routes window will be saved; use Export, Active Project to save all the routes, tracks, and markers into a single GPX file.

Copying Routes to the Clipboard

The Export Routes window also includes a **Copy to Clipboard** button (not shown above.) Use this to select multiple routes at once to be copied to the Windows Clipboard. Once they have been placed on the clipboard, they can be pasted into any Windows application (as a text file, similar to the .RXF file format.) In addition, groups of routes can be pasted into another Project. To switch to another Project, open the **Layers** menu and choose **Change Project**.

Notes:

- All exported routes will be retained in Terrain Navigator Pro. Exporting routes does not delete them from Terrain Navigator Pro. It creates another version of your route data in the file format you specify.
- By exporting to the .RXF file format, you can share your route data with other Terrain Navigator Pro software users. To import .RXF data into Terrain Navigator Pro, open the **File** menu, choose **Import, Routes**, and browse to the location of the RXF file. The imported routes will be added to your route list and will appear on the maps.
- Routes exported from Terrain Navigator Pro may be imported into many other popular navigation applications available from various other vendors. Simply select the file format used by that other program. (If you are not sure, GPX, KML and Shapefile are all very common formats.)
- Terrain Navigator Pro can import RXF files from any previous version of any of the Terrain Navigator Pro family of programs.
- Not all route properties are supported by the import/export formats. For example, comments for the route are not preserved in RXF files, nor are highlighting of legs, background colors, etc. For a complete backup of all route data, please use Terrain Project Archives.

Route Text File Format (.RFX)

Terrain Navigator Pro allows the export of route layers to a text file. This enables you to share your routes with others, to create archive copies, or to transfer the layer information to and from similar programs. While the file extension of these route text files is .RFX, these are text files (sometimes referred to as ASCII files), and can be opened and edited with any text editor (including Windows *Notepad*.)

Importing Routes

To import routes that were previously exported, or route text files that were created by hand or from another application, go to the **File** menu, choose **Import, Routes** and select the file where the routes are saved. Click **Open**. Terrain Navigator Pro imports your routes, and displays a message telling you how many routes were imported. The routes will automatically appear in their proper locations on the map, in their proper color. For more information on this process, see Importing Routes.

Creating a Route outside of Terrain Navigator Pro

If you have coordinate data that you would like to transfer to Terrain Navigator Pro for display as a route, you can create RFX files in Windows *Notepad*, *Wordpad*, or a word-processing program. Simply follow the format outlined below.

Transferring a Route to Another Application

Use the Export Routes command to save the desired route(s) in the RFX format. Then, using the format outlined below, import this data into the desired application. This can include Microsoft Excel, or any application designed to read text files. However, the data may require some formatting or changes before obtaining the desired result.

Once you have created your route, click **File > Export > Routes**, and highlight the route that you want to export. Set the location to where you want the file to be saved. If you choose to export several routes at once, the resulting file will contain data for all waypoints in all routes, grouped by route name.

When route layers are exported, the original route will still be retained on the map. All the geographic characteristics of the route will be preserved throughout the export process, so that when the route is imported into Terrain Navigator Pro, the basic structure will appear as it did when it was exported. However, some route properties are not maintained by the .RFX format; these include route notes (comments), highlights, background colors, and other minor details. To share or archive the complete route layer, use a Terrain Project Archive.

The RFX File Format

Here is an example of Terrain Navigator Pro's RFX route file format:

```
43.7721633, -071.2655753, "Lodge", "Lodge", "Lock door", "Brook Trail", 800000, ff0000, 11
43.7711296, -071.2749506, "Pick up trail", "Pckptr", "", "Brook Trail", 800000, ff0000, 0
43.7685800, -071.2792148, "Water stop", "Wtrstp", "", "Brook Trail", 800000, ff00ff, 11
43.7669951, -071.2849459, "Lunch", "Lunch", "", "Brook Trail", 800000, ff0000, 11
43.7655480, -071.2871729, "Good view", "Gdvw", "", "Brook Trail", 800000, ff0000, 11
43.7638597, -071.2940883, "Switchback", "Swtchb", "", "Brook Trail", ffff, ff0000, 11
43.7577270, -071.2985914, "Cabin", "Cabin", "", "Brook Trail", 800000, ff0000, 11
```

This shows the route "Brook Trail" and contains seven waypoints. The first waypoint is named "Lodge" and is located at latitude 43.7721633 N, longitude 071.2655753 W. The first field is the latitude, then longitude, waypoint name, waypoint GPS name, waypoint notes, route name, waypoint color, leg color, and symbol identifier.

Latitude/Longitude

Coordinates are given in Latitude/Longitude in Decimal Degrees, WGS84 Datum. This format can not be changed. However, conversion to other formats (within Latitude/Longitude) is fairly straightforward.

Waypoint Name/GPS Name

This is the name of the waypoint which is commonly displayed next to the waypoint symbol. It is followed by the GPS Name which is often abbreviated to allow for compatibility with handheld GPS units.

Waypoint Notes

Any comments for that particular waypoint. In our example, the first waypoint "Lodge" has the note "Lock door". Notes for the entire route can not be stored in the .RXF file format.

Route Name

This is the name of the route that contains this waypoint. Since a RXF file can contain more than one route, the name must be specified for each waypoint within that route.

Waypoint Color/Leg Color

The colors of this waypoint, and of the route leg (line from this waypoint to the next) are specified here. Often, these colors remain consistent for the entire route. Colors are represented by their hexadecimal RGB value:

light green	ff00
forest green	808000
yellow	ffff
light gray	c0c0c0
royal blue	ff0000
purple	800080
light purple	ff00ff
navy blue	800000
aqua	ffff00
light olive	8080
white	ffffff
green	8000
dark gray	808080
brown	80
black	0
red	ff
orange	80ff

Waypoint Symbol Identifier

This refers to the symbol that is drawn on the map. Refer to the Symbol Key for Marker & Route MXF/RXF Text Files for more information.

Notes:

- Be certain to press Return after the final line of your RXF file. And remember to save your text file with the extension .RXF.
- You must supply all latitude and longitude data in decimal degrees, and WGS84 datum.
- Do not include quotation marks (") within the name fields. Terrain Navigator Pro will not be able to import this correctly.
- When importing layers into Terrain Navigator Pro, any parameters not specified within the RXF file will be taken from the Route Preferences. For example, to import a route with a yellow highlight, set the Route Preferences to have a yellow highlight, then import the route.

- Not all route properties are supported by the import/export formats. For example, highlighting of routes, background colors, use within the Emergency Management SymbolPack, etc. For a complete backup of all route layers, use Terrain Project Archives.

Tracks

Importing Tracks

As you may know, Terrain Navigator Pro lets you export tracks to text file format. These text files, whose file extension is "TXF," may be shared with other users of MyTopo software, or you might keep your own TXF files as a backup copy of your track data. You can import TXF files into Terrain Navigator Pro, and the tracks contained in the TXF files will be placed on the maps.

To import a TXF track file, click **File > Import > Tracks**. Browse to the location of the TXF file you wish to import. You may only import one TXF file at a time. Once the file is selected, press **Open**. A message will appear on the screen, telling you how many tracks were imported, along with the total number of waypoints.

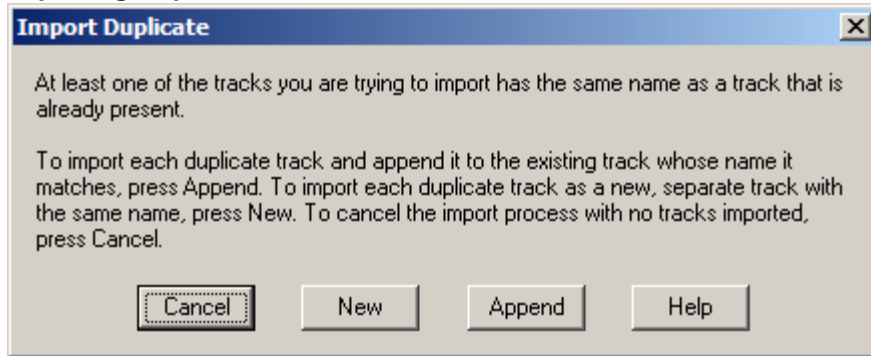
Other File Formats:

GPX files (an XML-based format used by some web sites for coordinate sharing) can be imported into and exported from Terrain Navigator Pro

Notes:

- You may experience difficulty if you attempt to import a track that already exists in Terrain Navigator Pro. If you try to import an TXF file that contains track data that already exists in Terrain Navigator Pro, you will receive a message explaining that the track could not be imported - and ask you how to proceed. This may happen if you created the TXF file as backup, but never deleted the original track from Terrain Navigator Pro.
- A single TXF file may contain data for more than one track.
- Track import is *backwards-compatible*, meaning that you may import TXF files from any previous version of any program in the Terrain Navigator Pro family of programs.

Importing Duplicate Tracks



When you're importing tracks from a text file or from a GPS, Terrain Navigator Pro will notify you if any of the tracks you're importing has the same name as a track you already have. You will be presented with the following options:

CancelThis will stop the importing process. Click Cancel if you want to examine your track data more closely before importing any more tracks than you already have.

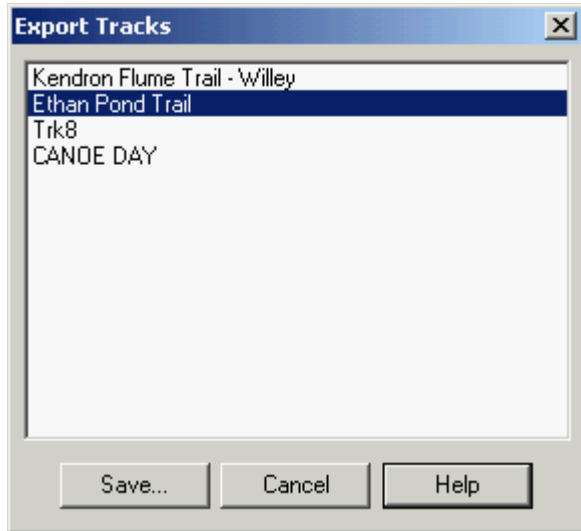
NewThis will take each duplicate track and save it on the map as a separate, new track with the same name as a track you already have.

Note: Generally speaking, it is not advisable to maintain more than one track with the same name, as this can cause confusion. It is recommended that you assign each of your tracks a unique name.

AppendThis will import each duplicate track and attach it to the existing track that has the same name. The imported track will be attached to the end of the existing track. In other words, the first point in the track you're importing will be attached to the last point in the track already on the map.

Exporting Tracks

You can export selected tracks and save them elsewhere on your computer system. This is handy for sharing your tracks with other people who use Terrain Navigator Pro, for keeping backup copies of your data, and for using your data in other applications. You can also copy the tracks to the clipboard, so they can be pasted into another Project within Terrain Navigator Pro or similar application.



To export tracks, open the **File** menu and choose **Export, Tracks**. Terrain Navigator Pro will display a list of all your tracks. Highlight the track(s) you want to export. You can select as many as you want (use your Control and Shift keys to highlight multiple tracks). When you have made your selections, click **Save**.

The next window will prompt you to name the file that contains your exported tracks, and specify the directory location where you want to save it.

Available Export Formats

TXF

Our text-based format for track import/export. TXF files may be shared among users of Terrain Navigator Pro, or can be manipulated in a generic text format. A single .TXF file will contain all the tracks you have selected for this export. See track text file format (.TXF) for complete details on this file format.

SHP

ESRI's "Shapefile" format is used in a variety of GIS products. Because a "Shapefile" consists of multiple components, exporting in this format will result in multiple files. Tracks exported into this file format can be imported into Terrain Navigator Pro as an Overlay. For additional details, see ESRI Shapefile Format.

GEN

UnGenerate file format, for use with ESRI ARC/Info and similar GIS applications. Tracks exported into this file format cannot be imported back into Terrain Navigator Pro.

GPX

An XML-based format used by some web sites and handheld GPS units for coordinate sharing. Tracks exported into this format can be imported back into Terrain Navigator Pro and into a variety of other navigation and mapping products. While this format can be used to store markers, routes, and tracks, only those tracks selected in the export tracks window will be saved; use Export, Active Project to save all the routes, tracks, and markers in the active Project into a single GPX file.

KML

An XML-based format used by some web sites and applications for coordinate sharing - most notably Google Earth. Tracks exported into this file format can be imported into Terrain Navigator Pro as an Overlay. While this format can be used to store markers, routes, and tracks, only those tracks selected in the export tracks window will be saved; use Export, Active Project to save all the routes, tracks, and markers into a single GPX file.

Copying Tracks to the Clipboard

The Export Tracks window also includes a **Copy to Clipboard** button (not shown above.) Use this to select multiple tracks at once to be copied to the Windows Clipboard. Once they have been placed on the clipboard, they can be pasted into any Windows application (as a text file, similar to the .TXF file format.)

In addition, groups of tracks can be pasted into another Project. To switch to another Project, open the **Layers** menu and choose **Change Project**.

Notes:

- Your tracks will be retained in Terrain Navigator Pro. Exporting tracks does not delete them from Terrain Navigator Pro. It simply creates another version of your track data, in the file format you specify.
- You can share your TXF data with other Terrain Navigator Pro software users. To import tracks into Terrain Navigator Pro, open the **File** menu, choose **Import, Tracks**, and browse to the location of the TXF file. The imported tracks will be added to your track list and will appear on the maps.
- Tracks exported from Terrain Navigator Pro may be imported into many other popular navigation applications available from various other vendors. Simply select the file format used by that other program. (If you are not sure, GPX, KML and Shapefile are all very common formats.)
- Terrain Navigator Pro can import TXF files from any previous version of any of the Terrain Navigator Pro family of programs.

Track Text File Format (.TXF)

Terrain Navigator Pro allows the export of track layers to a text file. This enables you to share your tracks with others, to create archive copies, or to transfer the layer information to and from similar programs. While the file extension of these track text files is .TXF, these are text files (sometimes referred to as ASCII files), and can be opened and edited with any text editor (including Windows *Notepad*.)

Importing Tracks

To import tracks that were previously exported, or track text files that were created by hand or from another application, go to the **File** menu, choose **Import, Tracks** and select the file where the tracks are saved. Click **Open**. Terrain Navigator Pro imports your tracks, and displays a message telling you how many tracks were imported. The tracks will automatically appear in their proper locations on the map, in their proper color. For more information on this process, see Importing Tracks.

Creating a Track outside of Terrain Navigator Pro

If you have coordinate data that you would like to transfer to Terrain Navigator Pro for display as a track, you can create TXF files in Windows *Notepad*, *Wordpad*, or a word-processing program. Simply follow the format outlined below.

Transferring Tracks to Another Application

Use the Export Tracks command to save the desired track(s) in the TXF format. Then, using the format outlined below, import this data into the desired application. This can include Microsoft Excel, or any application designed to read text files. However, the data may require some formatting or changes before obtaining the desired result.

Once you have created your tracks, open the **File** menu, choose **Export, Tracks**, and highlight the track(s) that you want to export. Set the location to where you want the file to be saved. If you choose to export several tracks at once, the resulting file will contain data for all track points in all tracks, grouped by track name.

When track data is exported, the original track will still be retained on the map. All the geographic characteristics of the track will be preserved throughout the export process, so that when the track is imported into Terrain Navigator Pro, the basic structure will appear as it did when it was exported. However, some track properties are not maintained by the .TXF format; these include track notes (comments), highlights, background colors, and other minor details. To share or archive the complete track layer, consider using a Terrain Project Archive.

The TXF File Format

Here is a simple example of Terrain Navigator Pro's TXF track file format:

```
38.2373733, -107.5542683, "My Hike", ff, 0
38.2373388, -107.5542248, "My Hike", ff, 0
38.2373044, -107.5541813, "My Hike", ff, 0
```

This shows three track points. The first field is the latitude, then longitude, track name, color and time.

Latitude/Longitude

Coordinates are given in Latitude/Longitude in Decimal Degrees, WGS84 Datum. This format can not be changed. However, conversion to other formats (within Latitude/Longitude) is fairly straightforward.

Track Name

This is the name of the track that contains this track point. Since a TXF file can contain more than one track, the name must be specified for each point within that track.

Color

The color of this track leg is specified. Usually, this color remains consistent for the entire track. Colors are represented by their hexadecimal RGB value:

light green	ff00
forest green	808000
yellow	ffff
light gray	c0c0c0
royal blue	ff0000
purple	800080
light purple	ff00ff
navy blue	800000
aqua	ffff00
light olive	8080
white	ffffff
green	8000
dark gray	808080
brown	80
black	0
red	ff
orange	80ff

Optional Fields: Time, Leg Distance and Leg Time

The final 3 fields are optional and do not need to be included in the .TXF file.

The first field is the "UNIX time" that the track point was created. (UNIX time is measured in seconds from Jan. 1, 1970.) This field is supplied by certain GPSs and can be used with GeoTips and placing GeoPins with time data. If the track was not recorded by a compatible GPS unit, Terrain Navigator Pro will export this time as 0 (as shown in the above example.) New TXF files can skip this field altogether - this allows compatibility with .TXF files created using earlier versions of Terrain Navigator Pro.

Following the time, there may be two additional fields: Leg Distance (in miles) and Leg Time (in seconds.) These two fields are provided as a pass-through from the GPS and are currently not used by Terrain Navigator Pro.

Here is an example of Terrain Navigator Pro's TXF track file format with the optional fields for UNIX time, Leg Distance and Leg Time:

```
42.89466098, -71.19588026, "My Hike", ff00, 1343416823
42.89465745, -71.19588588, "My Hike", ff00, 1343416828, 0.000374, 5
42.89465385, -71.19588856, "My Hike", ff00, 1343416833, 0.000284, 5
42.89464823, -71.19589116, "My Hike", ff00, 1343416838, 0.000410, 5
```

In this example, the track was recorded with 5 second interval between each track point (as shown in the UNIX time and leg time fields.) Also, notice how the first track point does not have a leg time or interval assigned to it.

Notes:

- Be certain to press Return after the final line of your TXF file. And remember to save your text file with the extension .TXF.
- You must supply all latitude and longitude data in decimal degrees, and WGS84 datum.
- Do not include quotation marks (") within the name fields. Terrain Navigator Pro will not be able to import this correctly.

Terrain Navigator Pro

- When importing layers into Terrain Navigator Pro, any parameters not specified within the TXF file will be taken from the Track Preferences. For example, to import a track with a yellow highlight, set the Track Preferences to have a yellow highlight, then import the track.
- Not all track properties are supported by the import/export formats. For example, highlighting of the track, symbols along the track, fill patterns, etc. For a complete backup of all track layers, use Terrain Project Archives.

Other Data & Miscellany

GPX File Format (.GPX)

GPX - or GPS Exchange Format is an XML-based format used by some web sites and various applications for coordinate sharing. Its flexibility has made it very popular for transferring GPS data from applications, GPS units, and many other places.

For information about the GPX schema, please visit: <http://www.topografix.com/gpx.asp>

Supported GPX Tags

Terrain Navigator Pro supports the following GPX tags in import/export. All other tags are ignored.

<wpt>

- lat
- lon
- <time>
- <name>
- <cmt>
- <desc>

<rte>

- <name>
- <cmt>
- <desc>
- <rtept>

<trk>

- <name>
- <cmt>
- <desc>
- <trkseg>
- <time>

<rtept>

- <wpt>

<trkseg>

- <trkpt> (wpt)

ESRI Shapefile Format

Terrain Navigator Pro allows you to export markers, routes and tracks in ESRI Shapefile format. This format is used in a variety of GIS applications. It is important to note that when you export data to the Shapefile format, you will receive one or more sets of files. This is because a "shapefile" is not a single file - it is a general specification for sharing geospatial information. This information consists of many individual files, which are collectively known as "shapefiles."

To export layer data from Terrain Navigator Pro, open the **File** menu, choose **Export** and select a data type (markers, routes, or tracks). Select the layers you want, and when prompted to specify an export format, choose **Shapefile**.

When exporting markers, you will receive one set of files. This file set will include all the markers you selected for export.

When exporting routes, you will receive multiple sets of files for routes that you export. One file set will contain the route's waypoints. A second file set will contain data on the route line itself. If you're exporting a route that is looped—that is, one that forms an enclosure—you will also receive a third set of files for that route, describing the polygon formed by the loop.

When exporting tracks, you will receive one set of files for each track line, plus an extra set for any track that is looped.

Examples:

- If you export three routes, one of which is looped, you will receive one set of point files, *one* set of line files (containing the two non-looped routes), and *one* set of polygon files (for the route that is looped).
- If you export two tracks, one of which is looped, you will receive two files, one line file for the open track and one polygon file (for the looped track).
- All markers selected in a single export will be covered by one set of point files.

For further information, visit www.esri.com.

Importing ESRI Shapefiles

ESRI Shapefiles can be imported into Terrain Navigator Pro for display. For more information, see the topic on Overlays.

Importing/Exporting Projects (Terrain Project Archive)

Projects may be exported from Terrain Navigator Pro and saved in a single Terrain Project Archive file (ending in .TPA.) This allows you to share projects with friends and colleagues who use Terrain Navigator Pro, or save projects for future reference. To export a project, open the **File** menu and choose **Export, Active Project**. The project you're working with will be saved in a Terrain Project Archive. To import a project that has been archived, open the **File** menu and choose **Import, Terrain Project Archive**.

Combining the importing and exporting of projects with the copy/paste tools can be used for a variety of special tasks. For example, if you wanted to take a portion of one project from a colleague and combine it with your own, use **Export Active Project** on the colleague's copy of Terrain Navigator Pro to create a Terrain Project Archive. **Import** the **Terrain Project Archive** into your PC. Find the layer you wish to place in your project, right click it, and choose **Copy to Clipboard**. Open the **Layers** menu, choose **Change Project** and switch to the desired project. From the **Tools** menu, choose **Paste** and the layer object will now be in your project. Finally, delete the copy of the project (using **Layers, Change Project**) if you so desire. (Multiple copy/paste operations can be facilitated using the windows for **Exporting Markers, Routes, Tracks**, etc.)

When multiple projects are to be imported, hold the SHIFT or CTRL key down when selecting the Terrain Project Archive. This will allow Terrain Navigator Pro to load each selected project at once.

Terrain Navigator Pro also includes full backup and restore features. Terrain Project Archives can be created automatically in the directory of your choice. Moreover, a complete directory of Terrain Project Archives (one for each of your projects) can be created with a single command using the **File** menu and choosing **Backup and Restore, Backup all Projects**. Finally, any of these Terrain Project Archives can be restored into Terrain Navigator Pro using **File, Backup and Restore, Restore Project(s)** and using the SHIFT or CTRL key to select multiple .TPA files.

Projects can also be exported as combined collections of markers, routes, and tracks into .GPX and .KML files. Use the **File** menu and choose **Export, Active Project**, then specify the GPX or KML file type. Note that only markers, routes, and tracks are exported - other layer types are ignored.

Latitude/Longitude Formats and Conversion

Terrain Navigator Pro allows you to display and enter Latitude/Longitude coordinates in three formats: *Degrees Minutes Seconds* (D° M' S"), *Decimal Minutes* (D° M.M'), and *Decimal Degrees* (D.D°). Each of these formats can represent the same geographic location, but expressed differently.

For example, MyTopo's headquarters in downtown Billings, Montana is located at the following coordinates:

45° 46' 52" N 108° 30' 14" W

as displayed in *Degrees Minutes Seconds* (D° M' S"). This same location, in displayed *Decimal Minutes* (D° M.M'), is:

45° 46.8666' N 108° 30.2333' W

In *Decimal Degrees* (D.D°), this same location is:

45.7811111° N 108.5038888° W

Which format should I use?

When Terrain Navigator Pro first starts, it displays all coordinates in Degrees Minutes Seconds (D° M' S") - as this is the most commonly used. However, many popular GPS units (such as those made by Garmin) default their coordinate systems to Decimal Minutes (D° M.M'). This can sometimes cause confusion when manually entering coordinates from the GPS into Terrain Navigator Pro. To compensate for this, change the Coordinate Preferences in Terrain Navigator Pro to match the Position Format specified in the GPS.

Some have found that the Decimal Degrees (D.D°) format works particularly well, since it is made up of a single number sequence (one for latitude, one for longitude) when transferring coordinates between applications. This is why Terrain Navigator Pro uses this format in its .BMX, .GXF, .LXF, .MXF, .NXF, .BXF, .RXF, and .TXF file formats for import/export of layers, such as routes, tracks, markers, etc.

How do I convert between formats?

To convert from Degrees Minutes Seconds (D° M' S") to Decimal Degrees (D.D°)

Use the following formula:

Degrees + (Minutes divided by 60) + (Seconds divided by 3600) = Decimal Degrees

- or -

$D + (M/60) + (S/3600) = D.D^\circ$

For example, a latitude of 45 degrees 46 minutes 52 seconds would translate to:

$45 + (46/60) + (52/3600) = 45.7811111^\circ$

To convert from Degrees Minutes Seconds (D° M' S") to Decimal Minutes (D° M.M')

Use the following formula:

Degrees and Minutes + (Seconds divided by 60) = Decimal Minutes

- or -

$D \text{ and } M + (S/60) = \text{Decimal Minutes}$

For example, a latitude of 45 degrees 46 minutes 52 seconds would translate to:

$45 \text{ and } 46 + (52/60) = 45^\circ 46.86666'$

To convert from Decimal Degrees (D.D°) to Decimal Minutes (D° M.M')

Use the following formula:

Degrees = Integer Portion of D.D°

Minutes = Decimal Portion of D.D° (including the decimal point) * 60

- or -

$\text{Int}(D) = D^\circ$

$(D - \text{Int}(D)) * 60 = M.M'$

For example, a latitude of 45.781111 degrees would translate to:

$\text{Int}(45.781111) \text{ and } (45.781111 - \text{Int}(45.781111)) * 60 = 45^\circ 46.86666'$

To convert from Decimal Degrees (D.D°) to Decimal Degrees (D.D°)

Use the following formula:

Degrees = Integer Portion of D.D°

Minutes = The Integer Portion of the Decimal Portion of D.D° (including the decimal point) * 60

Seconds = The Decimal Portion of M.M (including the decimal point) * 60

- or -

$\text{Int}(D) = D^\circ$

$\text{Int}((D - \text{Int}(D)) * 60) = M'$

$((D - \text{Int}(D)) * 60 - \text{Int}((D - \text{Int}(D)) * 60)) * 60 = S''$

For example, a latitude of 45.781111 degrees would translate to:

$\text{Int}(45.781111)$ and $\text{Int}(45.781111 - \text{Int}(45.781111)) * 60$ and $((45.781111 - \text{Int}(45.781111)) * 60 - \text{Int}((45.781111 - \text{Int}(45.781111)) * 60)) * 60 = 45^\circ 46' 52''$

A Note About Sign and North, South, East West

Generally speaking, Latitude/Longitude is followed by an indication of hemisphere. For example, 45° 46' 52" N indicates the Northern Hemisphere (North of the equator.) 108° 30' 14" W indicates an area West of the Prime Meridian. When noting this numerically (especially in Decimal Degrees), positive and negative values are sometimes used. A positive value for North and East, a negative value for South and West. Thus, in our example, when noting 45° 46' 52" N 108° 30' 14" W in Decimal Degrees, it may appear as 45.781111 -108.5038888 when represented numerically. This is the case within Terrain Navigator Pro's .BMX, .GXF, .LXF, .MXF, .NXF, .BXF, .RXF, and .TXF file formats for import/export of layers, such as routes, tracks, markers, etc.
























And Regarding Datum...




























Datum is a modifier of all coordinate systems. Be sure that the datum setting in Terrain Navigator Pro (in Coordinate Preferences) matches the datum the coordinates were gathered in. (If you are not sure, WGS84 is usually a safe bet.) The datum of all import/export formats in Terrain Navigator Pro is WGS84.

Terrain Navigator Pro handles internal data conversions in WGS84 datum, and then presents the coordinate information in whatever datum you have selected in Coordinate Preferences. When you export layers (markers, routes, tracks, etc.) from Terrain Navigator Pro, the coordinate data in the resulting export file is given in WGS84 datum and Decimal Degrees. Therefore, when creating your own layer data to import into Terrain Navigator Pro, be sure to use WGS84 datum when editing your text file. Using a datum other than WGS84 will affect the accuracy of the coordinate locations in Terrain Navigator Pro.





























Symbol Key for Marker & Route MXF/RXF Text Files

Each symbol used in Terrain Navigator Pro import/export formats (.MXF for markers, .RFX for routes) has a unique identifier. The following chart indicates which identifier is used for each type of symbol.

Symbol Name	Code	Symbol
Airplane	24	
Ambulance	139	
Arrow (hollow: down)	99	
Arrow (hollow: left)	96	
Arrow (hollow: left-right)	100	
Arrow (hollow: NE)	103	
Arrow (hollow: NW)	102	
Arrow (hollow: right)	97	
Arrow (hollow: SE)	105	
Arrow (hollow: SW)	104	
Arrow (hollow: up)	98	
Arrow (hollow: up-down)	101	
Arrow (pageflip: down, then left)	62	
Arrow (pageflip: down, then right)	63	
Arrow (pageflip: left, then down)	68	
Arrow (pageflip: left, then up)	66	
Arrow (pageflip: right, then down)	69	
Arrow (pageflip: right, then up)	67	
Arrow (pageflip: up, then left)	64	
Arrow (pageflip: up, then right)	65	
Arrow (thick: down)	91	
Arrow (thick: left)	88	
Arrow (thick: NE)	93	

Arrow (thick: NW)	92	
Arrow (thick: right)	89	
Arrow (thick: SE)	95	
Arrow (thick: SW)	94	
Arrow (thick: up)	90	
Arrow (thin: down)	83	
Arrow (thin: left)	80	
Arrow (thin: NE)	85	
Arrow (thin: NW)	84	
Arrow (thin: right)	81	
Arrow (thin: SE)	87	
Arrow (thin: SW)	86	
Arrow (thin: up)	82	
Arrow (triangle: down)	75	
Arrow (triangle: left)	72	
Arrow (triangle: right)	73	
Arrow (triangle: up)	74	
Arrow (with x: left)	70	
Arrow (with x: right)	71	
Bear	115	
Bell	15	
Bicycle	135	
Bird (flying)	117	
Bird (in water)	125	
Bird (turkey)	120	
Blank (no symbol)	0	
Boat	121	





























Terrain Navigator Pro

Bow	127	
Bow and Arrow1	114	
Bow and Arrow2	126	
Camera	110	
Canoe	116	
Canoe (in water)	124	
Car (sedan)	112	
Car (SUV)	123	
Checkmark	107	
Circle (1:00)	50	
Circle (10:00)	59	
Circle (11:00)	60	
Circle (12:00)	61	
Circle (2:00)	51	
Circle (3:00)	52	
Circle (4:00)	53	
Circle (5:00)	54	
Circle (6:00)	55	
Circle (7:00)	56	
Circle (8:00)	57	
Circle (9:00)	58	
Circle (A)	597	
Circle (arrow down)	79	
Circle (arrow left)	76	
Circle (arrow out, NE)	581	
Circle (arrow right)	77	
Circle (arrow up)	78	
Circle (B)	577	



















Circle (C)	578	©
Circle (E)	599	€
Circle (F)	588	Ⓕ
Circle (filled1)	10	●
Circle (filled2)	579	●
Circle (food)	147	Ⓜ
Circle (H)	580	Ⓜ
Circle (N)	598	Ⓝ
Circle (open)	3	○
Circle (P)	602	Ⓟ
Circle (phone)	17	☎
Circle (R)	582	®
Circle (S)	585	Ⓢ
Circle (star)	49	★
Circle (T)	584	Ⓣ
Circle (W)	587	Ⓦ
Circle (X)	586	Ⓧ
Circle in Circle	37	⊙
Cross (hollow)	591	+
Cross1	27	⊕
Cross2	28	⊕
Cross3	29	⊕
Cross4	30	⊕
Crosshair (circle)	47	⊕
Crosshair (square)	46	⊕
Deer (running)	128	🦌
Deer (standing)	129	🦌
Diamond (filled)	11	◆

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Diamond (open)	4	◇
Diamond (question)	48	◊
Electric Current	33	⚡
Fire	131	🔥
Fire Hydrant	603	🚒
Fish	130	🐟
Flag	23	🚩
Flower	119	🌸
Four Diamonds	34	♠
Gas Pump	145	🛢️
Goat	142	🐐
Happy Face	21	😊
Helicopter	600	🚁
Hexagon (filled)	12	⬡
Hexagon (open)	5	⬢
Hiker	134	🚶
House (detailed)	118	🏠
House (detailed, large)	141	🏡
House (filled)	14	🏠
House (hospital/1st aid)	138	🏥
House (open)	7	🏠
Letter	18	✉️
Magnifying Glass	605	🔍
Mailbox	19	📧
Maptech	148	MAPTECH
Moose	146	🐃
Oil Well	143	🛖
People (group)	601	👥

Person walking Dog	592	
Police Officer	113	
Rifle	122	
Satellite Dish	604	
Skiing	132	
Skull and Crossbones	22	
Snowflake	26	
Square (^)	36	
Square (checkmark)	109	
Square (filled)	9	
Square (open)	2	
Square (partial filled)	590	
Square (triangle filled)	583	
Square (x1)	35	
Square (x2)	108	
Square (x3)	589	
Star (12-point)	44	
Star (3-point)	39	
Star (4-point)	40	
Star (5-point)	41	
Star (6-point)	42	
Star (8-point)	43	
Star (8-point, detailed)	45	
Star of David	31	
Target	38	
Telephone	16	
Tent	111	
Thumbs Up	20	

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Tower (East)	593	
Tower (North)	595	
Tower (omnidirectional)	144	
Tower (South)	596	
Tower (West)	594	
Tree	137	
Tree (pine)	136	
Triangle1 (filled)	8	
Triangle1 (open)	1	
Triangle2 (filled)	13	
Triangle2 (open)	6	
Turkey	133	
Water (spicket)	150	
Water (spring)	149	
Water (well/pump)	140	
Water Drop	25	
X - spot	106	
Yin-Yang	32	

Importing Layer Text Files into Microsoft Excel

Several MyTopo customers have told us that they plan to use Microsoft Excel to manipulate their exported data. For your convenience, we include the following step-by-step procedure for opening text files in Excel.

1. From Excel's File menu, choose **Open**.
2. Browse to the location of your .BMX, .GXF, .LXF, .MXF, .NXF, .BXF, .RXF, or .TXF file. (To bring the file into view, you may need to specify "All" or "Text Files" under "Files of Type" at the bottom of Excel's Open window.)
3. The next window that appears will offer you two choices. **Choose Delimited**, and click **Next**.
4. Under "Delimiters," check **Commas**. Click **Next**.
5. In the final window, you may leave the Column Data Format settings as they are (unless you have a preference here), and click **Finish**.

Your layer data may now be edited and saved in Excel's spreadsheet .xls format.

Note: When using this method to transfer layers to Microsoft Excel, avoid the use of commas in the names or notes for those objects. Otherwise, Excel may incorrectly interpret the name or notes field, breaking it at the comma.

Streets (Optional)

Street Routing



Terrain Navigator Pro's street module lets you create a highlighted track on the map or aerial photo which represents a driving track between two or more points. This is called street routing. Street routing is useful if you are driving between two locations and you want to see a visual representation of the best route on the map. When you create a track along streets, Terrain Navigator Pro will also generate driving directions in text format.

You can adjust how the street routing feature works in the driving direction preferences window.

There are five ways to create a track along streets:

- using two waypoints
- using multiple waypoints
- by entering the start and end addresses
- by positioning the map at the start address and entering the end address
- by connecting a GPS and specifying a route from the current position

Creating a Route with Two Waypoints

Creating a route is the easiest way to make a highlighted track of your drive on the map. For example, say you want to find the shortest driving route between your house and the airport.

1. Select the route tool from the toolbar.
2. Place the first waypoint at your starting point (in this case, your home).
3. Place the last waypoint at your destination (the airport).
4. Right-click the route and select **Create Track on Streets**.
5. In the track name window, give the track a name. Click **OK**.

The driving track will appear on the map as a highlighted line. A window with driving directions will also appear on the screen.

Creating a Route with Multiple Waypoints

You can create a route with multiple waypoints if your drive includes several stops or if you want the drive to pass through particular locations. For example, you might want to stop at a shopping center or drive by a scenic vista while driving from your house to the airport.

1. Select the route tool from the toolbar

2. Place the first waypoint at your starting point.
3. Place the next waypoints (as many as you would like) at any points of interest along your route.
4. Place the last waypoint at your destination.
5. Right-click the route and select **Create Track on Streets**.
6. In the track name window, give the track a name. Click **OK**.

The driving track between the start and end points including any stops in between will be highlighted on the map. A window with driving directions will also appear on the screen.

Start and End Address

If you know the addresses of the start and end points of your drive, you can create a highlighted track on the map between the two addresses. **Note:** The two addresses must be located within the state you are currently viewing.

1. Open the **Tools** menu and select **Driving Directions**.
2. Set the Source to **Street address**.
3. Enter the starting and ending addresses for the track. Click **OK**.
4. In the track name window, give the track a name. Click **OK**.

The track between the start and end points will be highlighted on the map. A window with driving directions will also appear on the screen.

Center of Screen to End Address

If you are viewing the location you wish to start your drive, you can create a highlighted track on the map between that point and the end address.

1. Position the map at the starting point.
2. Open the **Tools** menu and select **Driving Directions**.
3. Set the Source to **Center of the current map display**.
4. Enter the ending address for the track. Click **OK**.
5. In the track name window, give the track a name. Click **OK**.

The track between the start and end points will be highlighted on the map. A window with driving directions will also appear on the screen.

GPS Position to End Address

If you are viewing the location you wish to start your drive, you can create a highlighted track on the map between that point and the end address.

1. Connect to the GPS and start tracking by opening the **GPS** menu and choosing **GPS Tracking, Start Tracking**.
2. Open the **Tools** menu and select **Driving Directions**.
3. Set the Source to **Current GPS Position**.
4. Enter the ending address for the track. Click **OK**.

5. In the track name window, give the track a name. Click **OK**.

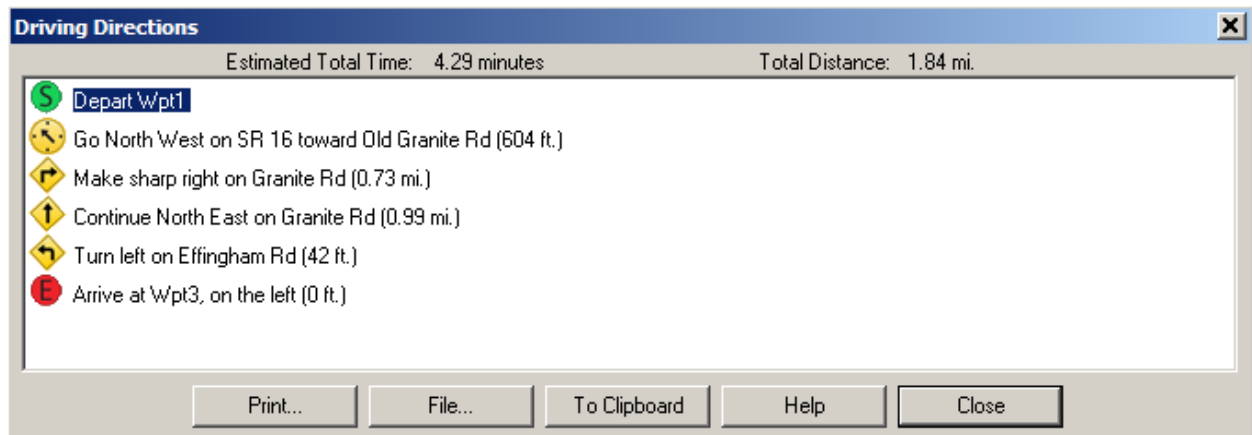
The track between the start and end points will be highlighted on the map. A window with driving directions will also appear on the screen.

Showing the Driving Directions of a Track

If you created driving directions for a track, an automobile will appear next to the track's name in the Find Track window. Once the track with embedded driving directions has been displayed on the map, right-click the track and choose **Show Driving Directions** to display the driving directions for that track.

Driving Directions

When you create a track on streets, a window will appear on the screen with text instructions for driving the track.



The estimated driving time and the total distance of the track appear at the top of the window. Click a line in the driving directions window to center on that part of the driving directions. A red circle will appear around that point on the map.

The buttons below the instructions offer several choices:


Print: Click **Print** to print the driving directions.

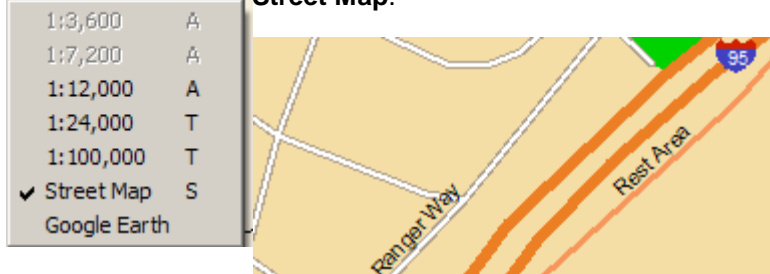
File: Click **File** to save the driving directions on your computer as a .txt file.

To Clipboard: Click **To Clipboard** to copy the driving directions to your clipboard for use in other applications.

Close: Closes the driving directions window. You can view the window again at any time by right-clicking the track on the map and choosing **Show Driving Directions**.

Street Data Visibility

Street Map S **1:1**  To view street data alone, click the scale drop-down menu on the toolbar and select **Street Map**.



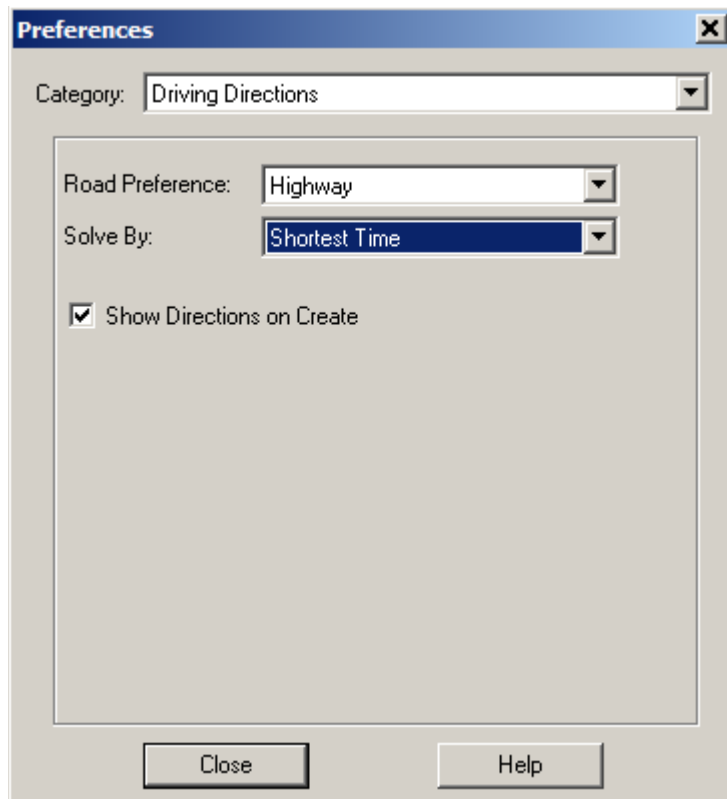
Street data can also be viewed as an layer on topographic maps and aerial photos.



While viewing a topo or photo, click **View > Layer Visibility**. Make sure the **Streets** box is filled with an X. Click **Close**. Street data will now be visible on your topographic maps and aerial photos.

Driving Direction Preferences

Click **File > Preferences > Driving Directions** to adjust how the street routing feature works.



Road Preference: Select **Highway** to choose a preference for primary roads. Otherwise, select **Other**.

Solve By: Select **Shortest Distance** for the track to follow the shortest distance between the start and end. Select **Shortest Time** for the quickest trip.

Show Directions on Create: Check this box for driving directions to show automatically each time the street routing feature is used.

Team Tracker (Optional)

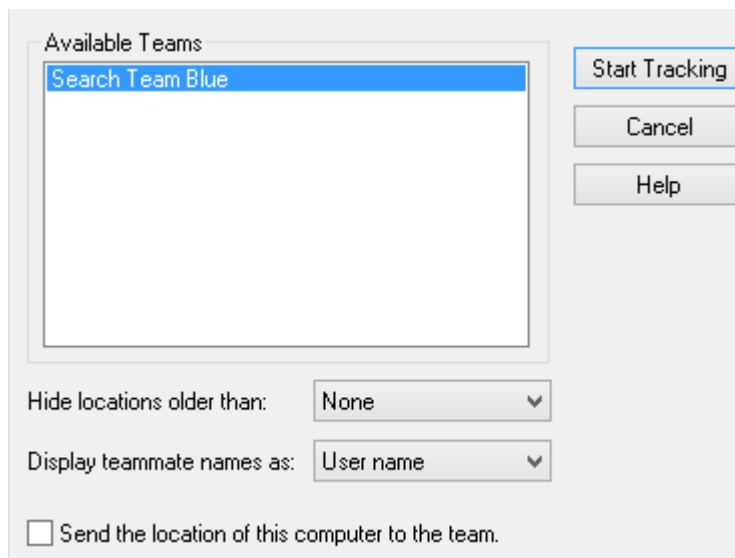
What is Team Tracking?

The **Team Tracker** module (included as part of the Enterprise Edition of Terrain Navigator Pro) provides valuable safety information for search and rescue teams, firefighters or anyone else who needs to know where workers are in the field at all times.

There are two basic methods for team tracking:

Using the TNP Mobile App

Log into your Terrain Navigator Pro Enterprise Edition account to create teams of users. Each user should have his/her own copy of the TNP Mobile App. Then in the Terrain Navigator Pro desktop software, open the **GPS** menu and choose **Team Tracking**. The following window will appear:



Select the team whose positions you wish to track and press **Start Tracking**. This window will close and the Team Tracking window will appear.

Hide Locations Older Than

The TNP Cloud receives updates from each user of their position. This position remains on the TNP Cloud until updated. Therefore, if a teammate has switched off his/her phone, or disabled the sending of position reports in the TNP Mobile App, then the position on the TNP Cloud could be quite outdated.

Specify a time that outdated positions can be ignored. In other words, if hiding locations older than 10 minutes, any teammates who have not updated their

positions within the last 10 minutes will not be displayed in the Team Tracking window.

Selecting *None* indicates that no team mate will be hidden. The last know position of each team mate, no matter when it was last updated on the TNP Cloud will be displayed in the Team Tracking window.

Display Teammate Names As

Use this setting to specify how you would like each teammate's route (and waypoints in the route) to be displayed. These values are based on the first name, last name, and username as set up in your Terrain Navigator Pro Enterprise Edition account.

Send the Location of this Computer to the Team

Checking this option will transmit to the TNP Cloud the position of this computer, provided a compatible GPS unit is connected for realtime GPS tracking.

When sending the location of the computer, note that the username logged into the desktop (in Subscription and User Account Preferences) will appear on each teammate's TNP Mobile App. Be sure that someone isn't also using that same account on a mobile device - otherwise the positions will get jumbled.

Using 3rd Party Hardware

In order to use the team tracker feature with 3rd party hardware, your computer must be hooked up to a 2-way radio transceiver. Terrain Navigator Pro can then track team members in the field who carry an

Infinity Gear GPS MIC-1/MIC-2 GPS handheld receiver, a EF Johnson Discover handheld receiver, or a Pryme Radio Products GPS-5100/GPS-4100 Series Speaker Microphone system. The locations of those who carry the receivers are automatically tracked and plotted on Terrain Navigator Pro's maps in real time. Workers can also transmit waypoints and send text messages to one another.

Those without these specific hardware products are also able to track multiple remote positions through the use of NMEA strings. This can be used with APRS or similar systems.

To learn more about 3rd party hardware compatible with Terrain Navigator Pro's team tracker feature, visit *Infinity Gear's* website: www.wwtechnologiesdirect.com or *Pryme Radio Products'* website: <http://www.pryme.com>.

Note: Team Tracking can not be used simultaneously with more than one type of hardware. For example, tracking via the TNP Mobile App can not be combined with a NMEA GPS tracker (such as offered by Infinity Gear.)

Team Tracker: Equipment and Software Setup

Setup: TNP Mobile App

First, log into your Terrain Navigator Pro Enterprise Edition web account. There you should setup the users and assign them to a team that you wish to track.

Each user should download and log into the TNP Mobile App. In the TNP Mobile App's Settings screen, locate the **Team Tracking** section. Turn **on** the option to **Send Location Updates**. Specify when (if ever) you want the phone to stop transmitting its location when the TNP Mobile App is running as a background app (that is, not the app being currently viewed on the mobile device.) If you are viewing other teammate's positions on the phone, you can choose to hide positions that have not been recently updated on the TNP Cloud.

To view other teammate positions on the phone, open the **Layers** screen (from the map display.) Locate the **Team Tracking** section and select the team whose positions you wish to track. You can also indicate if you wish to hide the labels of each teammate.

Notes:

When the TNP Mobile App is exited or hidden position transmissions will continue for the period of time specified in **Background Updates** in the Settings screen. If you want your position broadcasting to cease, be sure to turn off **Send Location Updates** before hiding the app. (For obvious reasons, if the phone runs out of battery, or is turned off, or if the app is terminated through the operating system, the transmissions of positions will also cease.)

Some phones do not allow transmissions to cease after a certain time. On those phones, the ability to stop **Background Updates** will not be available.

Some phones have the ability to disable the background refresh of apps. While team tracking, it is imperative that the TNP Mobile App be allowed to refresh as a background task - otherwise tracking will cease.

One other setup option on the TNP Mobile App is the **Naming Prefix**. Found in the Settings screen, any markers, geopins, and tracks created on the phone will have this text added to it. This is useful in a team environment to keep track of layers created from various teammates and shared through Project Synchronization.

Setup: Infinity Gear GPS MIC-1

This also applies to the GPS MIC-2, as well as the EF Johnson Discover.

Note: You must install the GPS MIC-1 driver software on your computer before the team tracker feature will work. Follow the instructions included with the GPS MIC-1 for complete details.

After installing the driver software, follow these instructions:

1. With your computer off, connect the 2-way radio transceiver to any free USB port on your computer.
2. Power on your computer and start Terrain Navigator Pro.
3. Open the **GPS** menu and choose **GPS Setup Wizard** to establish the initial communication settings for the radio transceiver. Alternatively, open the **GPS** menu, choose **Setup**, and set the *Manufacturer* to **Infinity** (or **EF Johnson**) and the *Unit* to **GPS MIC-1 - NMEA** (or **EF Johnson**

Discover - NMEA.) Once these settings are established, it is not needed to repeat this step (unless you wish to use Terrain Navigator Pro in conjunction with a different GPS unit.)

4. Open the **GPS** menu and select **Connect**. Once your computer has established communication with the transceiver, it is ready to receive locations and messages from the handheld units in the field.

Once your computer has established communication with the transceiver, it is ready to receive locations from the handheld units in the field.

The next time Terrain Navigator Pro is started, open the **GPS** menu and choose **Connect** to establish the link between the radio transceiver and Terrain Navigator Pro. (You do not need to run the GPS Setup Wizard again, unless you have connected a different handheld GPS to your computer.)

Once Terrain Navigator Pro is connected to the GPS transceiver, any positions, waypoints, and text messages will automatically appear. Do not select the 'Tracking' option from the GPS menu unless you wish to track the position of the base GPS transceiver while also tracking the position of other radios. (This may be useful while the base station is in a travelling mobile unit.)

Notes:

For successful communication with the Infinity Gear GPS mic, be sure that the baud rate found in the System/Other menu of the microphone matches the baud rate selected in Terrain Navigator Pro's **Port Settings**. (Note that the default value for this baud rate differs from the digital vs. analog editions of the Infinity Gear GPS mics.) Also, if you intend to track the position of the base GPS receiver upon Terrain Navigator Pro's maps and photos, set the G-MOUSE setting to 'On' once the mic has been connected to the base PC. Finally, be sure to specify the correct COM Port (as determined by the Windows Device Manager) or use the GPS Setup Wizard to auto-detect the COM Port.

It is not possible to transmit or receive markers, routes, or tracks from the GPS unit. However, waypoints created in the field can be transmitted to Terrain Navigator Pro as messages.

Setup: Pryme Radio Products GPS-5100

This also applies to the GPS-4100.

Note: You must install the GPS-5100/GPS-4100 software on the base station computer before the team tracker feature will work. Follow the instructions included with the base station for complete details.

After installing the base station configuration software, follow these instructions:

1. Connect the base station to any free serial port on your computer. Set up the base station following the instructions included with it. Test the base station software to ensure it is communicating properly with the GPS microphones.
2. Once you are satisfied that the base station is working properly, make a note of the COM Port(s) used by the base station. Then, close the base station software and start Terrain Navigator Pro.
3. Open the **GPS** menu and choose **GPS Setup**. Set the *Manufacturer* to **Pryme** and the *Unit* to **GPSMIC-5100**. Next, specify the first *COM Port* that is used to communicate with the base station. (This is the lowest-numbered port identified in step 2 of the setup procedure.)
4. Some advanced installations feature multiple COM Port channels. If your installation uses multiple ports, press the **Port Settings** button in the **GPS Setup**. Here, specify the total number of ports used. For example, if you are communicating with the base station on COM ports 4, 5, and 6, set the *COM Port* in **GPS Setup** to 4, and the *Number of Ports* to 3. Click **OK** to exit the GPS Port Settings.

5. Close the **GPS Setup** window to save these configuration settings. Next, open the **GPS** menu and select **Connect**. Once your computer has established communication with the transceiver, it is ready to receive locations and messages from the handheld units in the field.

Once your computer has established communication with the transceiver, it is ready to receive locations from the handheld units in the field.

The next time Terrain Navigator Pro is started, open the **GPS** menu and choose **Connect** to establish the link between the radio transceiver and Terrain Navigator Pro. (You do not need adjust the GPS Setup unless you have connected a different handheld GPS to your computer, or made changes to your base station configuration.)

Once Terrain Navigator Pro is connected to the station, any positions will automatically appear when transmitted from the GPS microphones. Note that the 'tracking' features of Terrain Navigator are disabled in this configuration. (It is not possible to track the position of the base station.)

Also note that it is not possible to transmit or receive markers, routes, tracks, waypoints, or text messages from Pryme GPSMIC microphones.

Once communication has been established, additional configuration options for each GPSMIC are available in the Team Tracking window.

Setup: NMEA (Generic) Tracking Devices ***Commonly used with APRS.***

The NMEA specification can be used to plot the position of one (or more) GPS units that are transmitting their position to Terrain Navigator Pro. It can be used in conjunction with an APRS system to plot positions as transmissions are received.

After setting your hardware to transmit NMEA sentences, follow these instructions:

1. Connect the appropriate hardware to a Serial Port (either real or virtual) on your computer. Consult your hardware manufacturer for assistance, if needed, ensuring that NMEA sentences are being transmitted to that port.
2. Start Terrain Navigator Pro.
3. Open the **GPS** menu and choose **Setup** to establish the initial communication settings for the radio transceiver. Set the *Manufacturer* to **NMEA - generic** and the *Unit* to **NMEA Tracker**. Specify the *Port* - matching the COM Port connected in step 1. Press *Port Settings* to adjust the Baud Rate, if needed. Finally, choose the desired tracking mode by pressing *Advanced*. (See below for additional information regarding the tracking mode.) Once these settings are established, it is not needed to repeat this step (unless you wish to use Terrain Navigator Pro in conjunction with a different GPS unit.)
4. Open the **GPS** menu and select **Connect**. Once your computer has established communication with the transceiver, it is ready to receive locations and messages from the handheld units in the field.

Once Terrain Navigator Pro begins to receive properly formatted NMEA sentences, their positions will appear on the maps.

The next time Terrain Navigator Pro is started, open the **GPS** menu and choose **Connect** to establish the link between the NMEA compatible hardware and Terrain Navigator Pro. (You do not need adjust the GPS Setup unless you have connected a different handheld GPS to your computer, or made changes to your hardware configuration.)

Once Terrain Navigator Pro is connected to the hardware, any positions, waypoints, and text messages will automatically appear. Do not select the 'Tracking' option from the GPS menu unless you wish to track the position of the base GPS unit while also tracking the position of other radios. (This may be useful while the base station is in a travelling mobile unit.)

Note that it is not possible to transmit or receive routes or tracks from a NMEA tracking GPS. However, waypoints can be received (in the WPL string) when tracking using TLL messages. TXT can also be used to receive a text message from the remote GPS.

Receiving NMEA Transmissions and Plotting Remote Positions

To start receiving these transmissions, choose 'Connect' from the GPS menu in Terrain Navigator Pro. The screen will automatically update with the positions of the field units as soon as their next transmission is received. If it is desired to track the position of the base station (as in a mobile command center) then you may also use the options found under the GPS Tracking menu item. (Note that these options have no affect on any remote GPS positions.)

Setting the Tracking Mode - Specifying NMEA Sentence Interpretation

The *Advanced* button in the GPS Setup window is used to specify which NMEA sentences trigger the display of remote positions. 'Track using WPL messages' allows a remote position to be plotted through the use of the NMEA WPL sentence. 'Track using TLL messages' allows a remote position to be plotted through the use of the NMEA TLL sentence. Specify the desired mode by pressing the Advanced button in the GPS Setup window.

Track Using WPL Messages

When tracking using WPL messages, the NMEA tracking module responds to the standard NMEA WPL string with a format of: `$GPWPL,4305.5751,N,07146.5827,W,WAYPT1*2B` which is interpreted as:

- **WPL** - Location of remote position (WayPoint Location)
- **4305.5751,N** - Latitude (formatted as: DDMM.mmmm)
- **07146.5827,W** - Longitude (formatted as: DDDMM.mmmm)
- **WAYPT1** - Waypoint Name
- ***2B** - Checksum data; Note: always begins with *

If a common *waypoint name* (**WAYPT1** in the above example) is used, the positions will be traced together to show a route over time. Otherwise, it will be assumed that the waypoints received represent separate remote GPS units, and will be plotted as such.

Note: Even when 'Track using WPL messages' is selected, TLL sentences (described below) will also be recognized.

Track Using TLL Messages

When tracking using TLL messages, the NMEA tracking module responds to the standard NMEA TLL string with a format of: `$GPTLL,01,4305.4281,N,07147.3170,W,TARG1,123456.21,T,R*57` which is interpreted as:

- **TLL** - Location of remote position (Target Latitude Longitude)
- **01** - Target Number (not used/ignored)
- **4305.4281,N** - Latitude (formatted as: DDMM.mmmm)

Terrain Navigator Pro

- 07147.3170,W - Longitude (formatted as: DDDMM.mmmm)
- TARG1 - Target Name
- 123456.21 - Target Time (not used/ignored)
- T - Target Status (S - SOS need help, otherwise ignored)
- R - Reference target (not used/ignored)
- *57 - Checksum data; Note: always begins with *

If a common *target name* (TARG1 in the above example) is used, the positions will be traced together to show a route over time. Otherwise, it will be assumed that the targets received represent separate remote GPS units, and will be plotted as such. Note that the *target number* is **not** used for this purpose - it is ignored.

If a *target status* of *s* is received, Terrain Navigator Pro will indicate an SOS/distress situation; otherwise the *target status* is ignored.

Other NMEA Sentences

When tracking using TLL messages, the NMEA WPL sentence is available for sending waypoints (markers) to Terrain Navigator Pro. Use standard NMEA formatting to accomplish this. However, it is not possible to transmit or receive routes or tracks from a NMEA tracking GPS.

The NMEA TXT sentence is available in both tracking modes to receive text messages from the remote GPSs. Use the following formatting of \$GPTXT,01,01,TARG1,Message*35 to accomplish this:

- TXT - TXT protocol header
- 01 - Total number of messages in this transmission (not used/ignored)
- 01 - Message number in this transmission (not used/ignored)
- TARG1 - Target name associated with this message; should match *target name* in TLL or *waypoint name* in WPL (*Note: this is a repurposed numeric field*)
- Message - Text of message for Terrain Navigator Pro to display.
- *35 - Checksum data; Note: always begins with *

Testing the NMEA Tracking Module

If the NMEA tracking module is not displaying positions, here are some troubleshooting tips:

- Ensure that the COM Port and Baud Rate in the GPS Setup window are correct. The COM Port must match the serial port (either real or virtual) that the base station is plugged into on the computer. The Baud Rate (in Port Settings) must match the baud rate that the base station is transmitting.
- Be sure to open the GPS menu and choose Connect before receiving NMEA transmissions. Otherwise, Terrain Navigator Pro will not be ready to receive them, and they will be ignored.
- Check that the PC is receiving NMEA sentences from the base station. Either use the **Show Streaming GPS Data** option found in the **GPS, Utilities** menu, or HyperTerminal/MTTTY to ensure that NMEA sentences are being received. ***If Show Streaming GPS Data, HyperTerminal, or MTTY do not show any streaming text when a position should be***

received, the connection issue lies outside of Terrain Navigator Pro. Please note that Terrain Navigator Pro Technical Support can not troubleshoot connection issues that lie outside of the software.

- Once you have verified that the PC is receiving NMEA sentences, ensure that they match the specification published above. Improperly formatted WPL, TLL, and TXT strings will be ignored. Refer to the documentation that accompanied the device generating the NMEA sentences for assistance with proper formatting. ***Please note that Terrain Navigator Pro Technical Support can not assist in the programming of devices that generate NMEA sentences.***
- If the device that is transmitting the NMEA sentences can not add the proper checksum values (*71, *67, *35 in the above examples), open the **Advanced** options in the **GPS Setup** window and choose **Ignore Checksum**.
- If possible, use a known good application or transmitter to send a test sentence to Terrain Navigator Pro. For example, each of the sample strings in the above documentation are formatted correctly and will cause results in Terrain Navigator Pro. However, the coordinates are located in New Hampshire and will not display unless that state is installed. However, since the TXT message does not include any coordinate information, it can be used to test Terrain Navigator Pro's NMEA tracking connection. Either use the sample provided above, or:
\$GPTXT,, ,TARG1,Testing 123*38

Sending Waypoints to the Base Station

Note: This topic refers to capabilities of Team Tracker when used with certain 3rd party hardware devices (such as GPS microphones.) This topic does not refer to capabilities of the TNP Mobile App. Those using the TNP Mobile App should use Project Synchronization to accomplish the same effect.

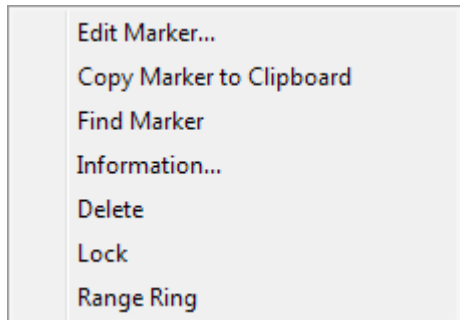
On some GPS microphones, waypoints can be sent from one remote radio to another remote radio so that workers in the field can let each other know their location. Sent waypoints are shown in Terrain Navigator Pro as markers. When a waypoint is sent, the waypoints received window will open.



Each marker in the waypoints received window is represented by two lines of data. Each worker in the field is represented by a color, which corresponds to the color of the icon shown here in the waypoints window and the color of the worker's route on Terrain Navigator Pro's maps. The name of the marker appears in the first line and is keyed in by the remote user who sent it. The second line of data shows the time the waypoint was sent, its group number and its unique remote GPS identity.

Press **Options >>** to pop up a dynamic list of available tasks that can be applied to the selected waypoint. Alternatively, you can right click on any waypoint listed and receive the same

options.



Waypoint Options

Each transmitter may send one or more waypoints. These waypoints can be edited and configured with various options. Select the waypoint you wish to modify, and press **Options >>** to pop up a dynamic list of available tasks that can be applied to the selected waypoint. Alternatively, you can right click on any waypoint listed (either on its name in the Waypoints Received window, or on any of the waypoints displayed on the map) and receive the options to:

Edit Marker: Opens the edit markers window, where you can change the attributes of this waypoint. This includes color, point size, symbol used, etc. (Remember that within the Terrain Navigator Pro software, objects commonly referred to as *waypoints* are referred to as *markers*.)

Copy Marker to Clipboard: Places the waypoint on the Windows clipboard to be pasted (as coordinates) into another application or Project in Terrain Navigator Pro.

Find Marker: Adjusts the map display such that the waypoint's location is shown.

Information: Opens the information window for this waypoint to display various statistics, etc.

Delete: Removes this waypoint from the map.

Lock: Prevents this waypoint from being accidentally moved. This option can also be found in the edit markers window.

Unlock: If *lock* has been chosen previously, clicking *unlock* removes this restriction. This option can also be found in the edit markers window.

Range Ring: Creates a range ring centered on the waypoint's position. Click a second time to create the ring interval (to size the ring appropriately.)

To send a waypoint from an Infinity Gear GPS mic:

1. On the GPS mic, open the *Waypoint* menu, then open the *Waypoint List*.
2. Select the Waypoint you wish to send to the base station.
3. Choose the *Send* option and *To Group*.

The waypoint will now be transferred to the base station.

To send a waypoint from a NMEA compatible device:

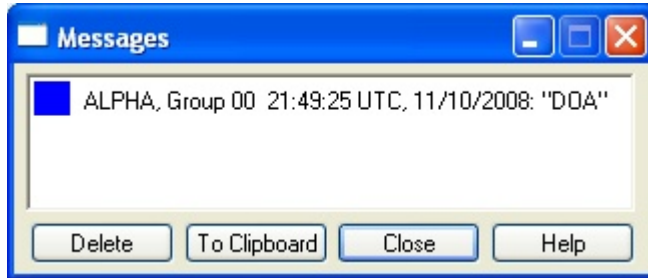
1. Use 'Track Using TLL Messages' in the GPS Setup. Set the device to match the protocols for tracking as defined in Equipment and Software Setup.
2. Ensure the device supports transmitting waypoints in the WPL format. See the NMEA specification for details.
3. Transmit the waypoint from the device.

The waypoint will now be transferred to the base station.

Note: The Pryme GPSMIC does not include the ability to transmit waypoints.

Sending Text Messages to the Base Station

With the TNP Mobile App, and some GPS microphones, workers in the field can send text messages back to the base station. This is very useful for relaying confidential information when other agencies may be monitoring the radio chatter. (Those using the TNP Mobile App don't have this concern, but it's still a cool feature.) When a text message is sent, the messages window will automatically open in Terrain Navigator Pro.



Each line represents one sent message. Each worker in the field is represented by a unique icon color. The data provided includes a warning (if any), the name of the waypoint, its group number, the time and date it was sent, and any message keyed in by the sender.

If you wish to save or print the information in this window, click **To Clipboard** to copy the text of the selected line to the Windows clipboard. Select a

message from the list and click **Delete** to delete the message. Tip: Hold the **shift** key on the keyboard while pressing **To Clipboard** or **Delete** to copy or delete ALL of the messages.

Click **Close** to exit the window. Note that any messages received will be discarded. (Unless they have been copied to the clipboard.)

To send a text message from the TNP Mobile App:

1. Open the Home screen of the TNP Mobile App.
2. Press Set Status Message.
3. Enter the message.
4. Press **Set Status Message** to send the message as a normal transmission or press **Set SOS Message** to send the message as an emergency transmission.

Note that the message is a "status" message and will be transmitted until cleared. Press **Clear Message** (in the Set Status Message screen) to cancel the transmission.

Emergency Shortcut: Press and hold the Set Status Message for 5 seconds. This sends an SOS signal to the base station. Press and hold again to clear it.

To send a text message from an Infinity Gear GPS mic:

1. On the GPS mic, open the *Messages* menu, then open *Write New*.
2. Key in the text message.
3. Press the *Menu* button and select YES, then *To Group*.

The text message will now be transferred to the base station.

To send a waypoint from a NMEA compatible device:

1. Set the device to send text messages that match the protocols for TXT as defined in Equipment and Software Setup in *Other NMEA Sentences*. Note that the true NMEA specification for this sentence is not followed.

2. Ensure the device supports transmitting text messages in the TXT format (as modified in Equipment and Software Setup.)
3. Key in the text message.
4. Transmit the text message from the device.

The text message will now be transferred to the base station.

Note: The Pryme GPSMIC does not include the ability to transmit text messages.

Emergency Management SymbolPack (Optional)

Emergency Management Symbols and Lines

The Emergency Management SymbolPack is an optional module that can be purchased separately to work with Terrain Navigator Pro 8.5 or later. The Emergency Management SymbolPack is included with Enterprise Editions of Terrain Navigator Pro.

The Emergency Management SymbolPack allows fire and emergency management personnel to place special symbols and lines on Terrain Navigator Pro's maps. These symbols can be used through the Edit Routes and Edit Markers windows. Fire lines can be drawn on the maps using the Fire Drawing Tools Palette. Finally, any font installed on the system.

If you wish to purchase this optional symbol pack, or if you have any questions regarding this package, contact Customer Service:

Telephone: 800-627-7236

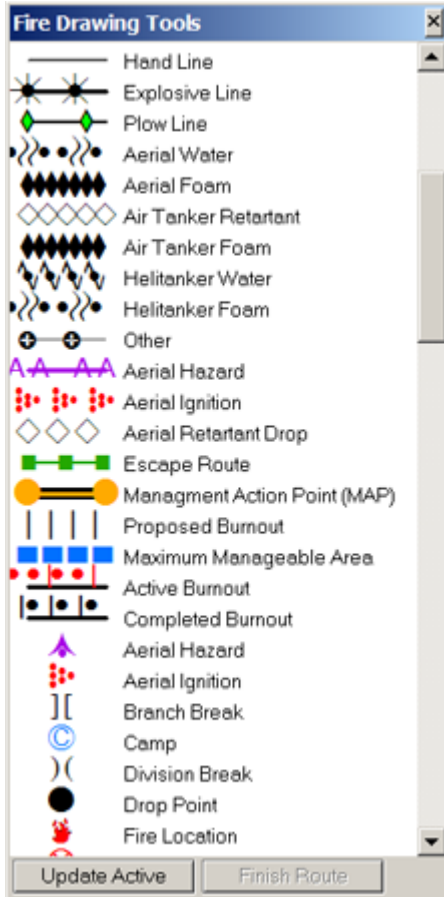
E-mail: tnp@mytopo.com

Fax: 866-207-0626

Internet: <http://www.terrainnavigator.com>

Fire Drawing Tools Palette

The Emergency Management SymbolPack is an optional module that can be purchased separately to work with Terrain Navigator Pro 8.5 or later. If you have the Emergency Management SymbolPack installed, you can use the special symbols and lines by opening the Fire Drawing Tools palette: click **Tools > Fire Drawing Tools**.



The Fire Drawing Tools palette contains all the different styles of lines and symbols contained in the Emergency Management SymbolPack.

Fire Lines

To draw a fire line, select a line style by clicking the desired style in the palette. The cursor will automatically change to the route tool.

Next, draw a route where you would like to place the fire line.

When you are finished drawing the route, right click and select **Finish Route**. You can apply a different style to the active line (the route you just created) at any time by clicking a new style in the palette and clicking **Update Active**.

You can also change the style of the active route's line in the Edit Routes window by selecting Line **Options** and choosing **Fire Line Styles** from the drop down menu.

Note that these styles have been preset to match nationally accepted standards. Thus, they can not be modified for different colors, etc.

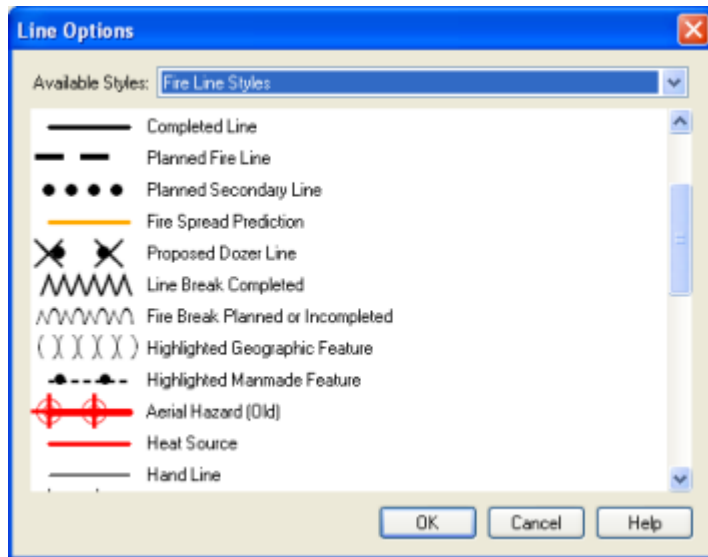
Symbols

You can also place symbols on the maps using the Fire Drawing Tools palette. Select a symbol style on the palette. The cursor will automatically change to the marker tool. Place the marker on the map at the desired location. You can apply a different style to the marker at any style to the active marker at any time by clicking a new style in the palette.

You can also change the style of the active marker's symbol in the **Edit Markers** window by clicking the **Symbol** button and selecting a category from the drop-down menu.

Fire Line Options

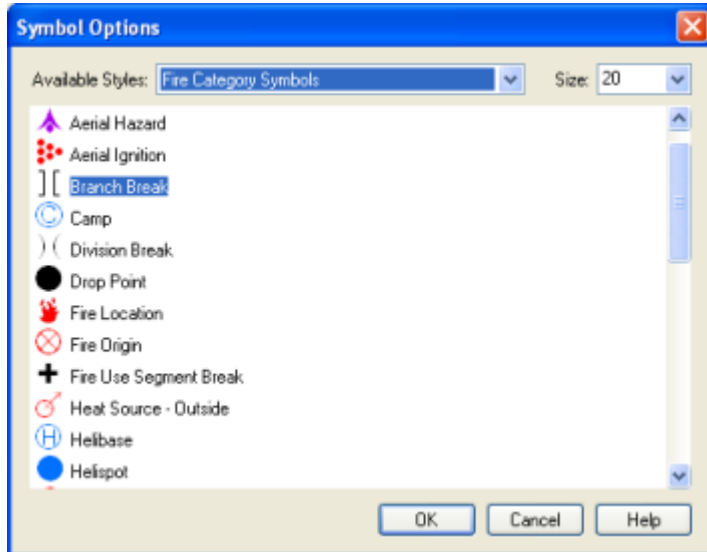
To reach the Line Options window, click **Layers > Routes** and click the Line **Options** button. The General line options are automatically selected. Use the drop down menu to select **Fire Line Styles**.



You can change the line style of the active route (the route you just created) by selecting any of the line styles found in this window. Note that these styles have been preset to match nationally accepted standards. Thus, they can not be modified for different colors, etc.

Fire Symbols

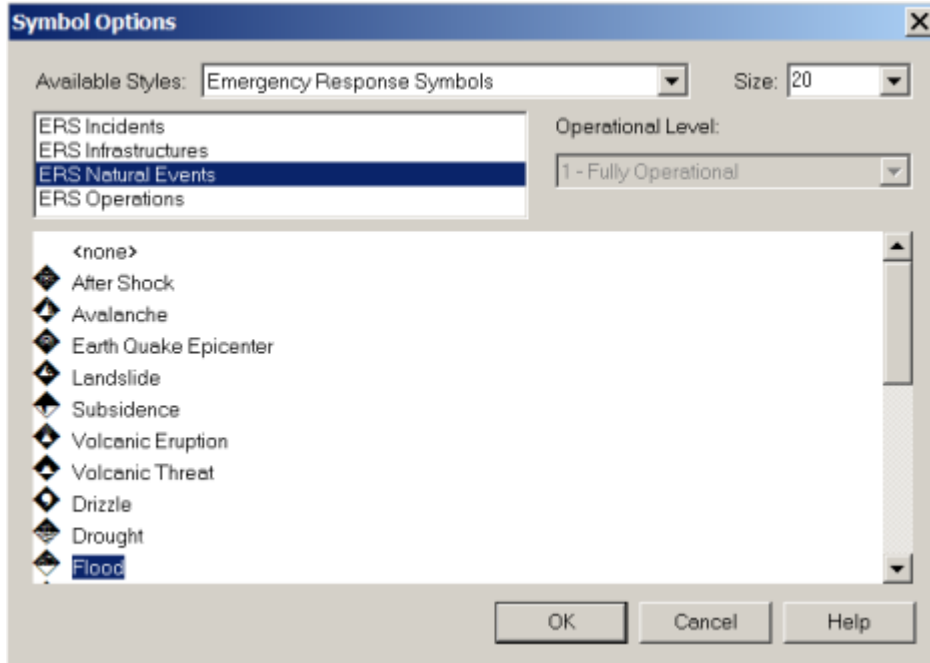
To reach the Symbol Options window, click **Layers > Markers**. Click the **Symbol** button. The General symbols are automatically selected. Use the drop down menu to select among the various classes of Fire Symbols. The fire symbol classes available are: **Category**, **Facility**, **Information**, **Protection**, and **Recreation**.



You can change the symbol style for the active marker or waypoint by clicking on any of the symbols found in this window. The point size of the symbol can also be specified. Note that these symbols have been preset to match nationally accepted standards. Thus, they can not be modified for different colors, etc.

Emergency Response Symbols

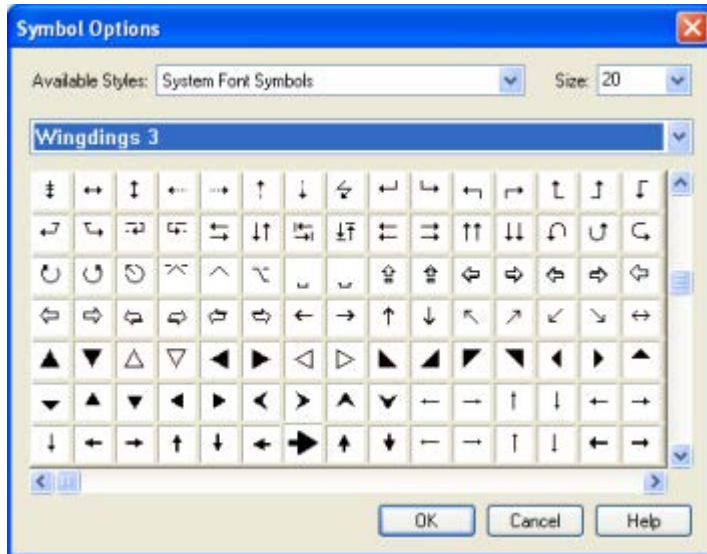
To reach the Symbol Options window, click **Layers > Markers**. Click the **Symbol** button. The *General* (default) symbols are automatically selected. Use the drop down menu to select the emergency response category.



You can change the symbol style for the active marker or waypoint by clicking on any of the symbols found in this window. The point size of the symbol can also be specified. In addition, **Infrastructures** and **Operations** have an **Operational Level** that will automatically apply the standard border and coloring to the symbol. Note that these symbols can not have their colors changed outside of those specified by their official use.

System Font Symbols

To reach the Symbol Options window for markers, click **Layers > Markers**. Click the **Symbol** button. You can also assign symbols to waypoints on or along your route: click **Layers > Routes** and click the **Symbol** button. The General symbols are automatically selected. However, you can use the drop down menu to select the **System Font Symbols**. A window will appear that allows you to browse and select from any font that is installed on your computer.



You can change the symbol style for the active marker or waypoint by selecting any of the fonts installed on your system, then clicking on any of the symbols found in this window. The point size of the symbol can also be specified. Note that if this project is exported for use on another computer, be sure that the font used is also available on that PC - otherwise a default font will be substituted.

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