



GPS Pathfinder Office Software

POWERFUL AND EASY-TO-USE GPS DATA PROCESSING SOFTWARE

Having accurate and up-to-date information is essential in today's changing and competitive environment. GPS Pathfinder® Office, developed by industry pioneer Trimble, provides a seamless connection between field data collection and your GIS, ensuring that the best possible data is the foundation for confident decision-making.

The GPS Pathfinder Office software adds value to your GIS data collection and data maintenance projects by enabling you to plan your field work sessions, making them more productive. And with powerful tools for viewing, editing, differential correction, and filtering, you output only the most consistent, reliable, and accurate data to your GIS. With better data, you make better decisions.

TRIMBLE TECHNOLOGY MEETS YOUR NEEDS

WHY GPS?

GPS technology is a fast, accurate, and cost-effective method of providing position data for features in a GIS database. GPS is a worldwide navigation system that makes it possible to collect data virtually any time or any place in the world with a common standard of accuracy and dependability. Use powerful GPS receivers—such as Trimble's Pathfinder or GeoExplorer® systems—in conjunction with a variety of differential correction sources to provide accurate data on the spot.

WHY GPS PATHFINDER OFFICE SOFTWARE?

The GPS Pathfinder Office software gives you the power of advanced Trimble GPS technology. In 1987, Trimble pioneered the introduction and use of GPS/GIS data collection systems. Since then, GPS has become the premier tool for providing position information.

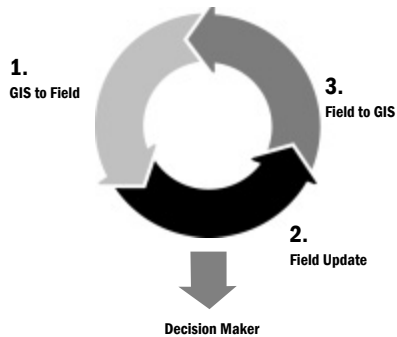
Trimble has continued to lead the way. In 1999, the company pioneered a new concept of GPS/GIS data maintenance. Advanced GPS technology enables you to relocate features graphically, verify and update positions and attributes, add new features, and easily integrate the changes into your GIS database.

The GPS Pathfinder Office software is a key component of Trimble's advanced GPS/GIS data maintenance system. This software is the result of many years of experience in building GPS tools for those who manage and utilize urban, utility and natural resource databases.



GPS Pathfinder Office has a full range of tools that address all aspects of GPS-based geographic data collection, update, and processing. This Microsoft Windows-based software makes it possible to quickly and easily prepare for fieldwork and process collected data for export to your GIS.

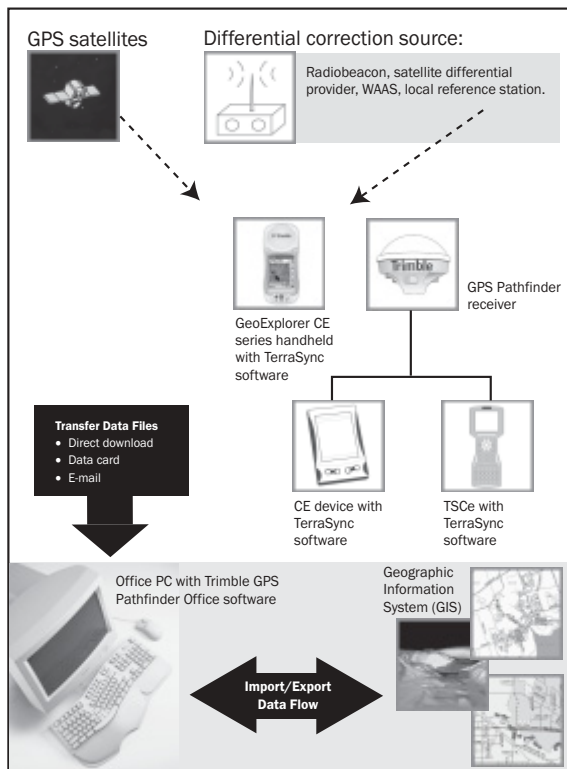
Utilities and governmental organizations use GIS information to plan and implement maintenance, new construction, and repairs. The result is improved service quality and cost-effectiveness. Government and private organizations use GIS information to manage and protect resources—whether for maximum yield, for maximum profit, or for multiple use. Accurate information helps ensure policy and decisions are sound.



The GPS Pathfinder Office software is a key component of all of Trimble's GPS/GIS systems. These systems are designed to maximize your data management capabilities and options. Use GPS Pathfinder Office to plan fieldwork, create data dictionaries, transfer files, differentially correct, view and edit data, and import and export data. The GPS Pathfinder Office software integrates seamlessly with:

- GeoExplorer CE series handhelds (GeoXT™ and GeoXM™) with Trimble's TerraSync™ software
- GPS Pathfinder Power, Pro XR, and Pro XRS systems with TerraSync or Asset Surveyor® software
- GPS Pathfinder Pocket receiver with TerraSync software
- GPS Pathfinder Tools software development kit
- Trimble Reference Station (TRS™) software

Choose the solution that best meets your requirements, and realize the benefits of better decisions from better data.



Note: Different receivers support different correction methods.

FEATURES AND BENEFITS

Ensure quality data

The ability to create a data dictionary or import an existing data dictionary as a template means newly collected data is compatible with existing data.

You can also use GPS Pathfinder Office to view a map of original and updated data to ensure that the data meets your quality standards before exporting it to your GIS.

Save time

A powerful **Batch Processor** allows you to save time processing data. You can set up the software to automatically download, process, and export your data to your GIS—even when you are not at your desk.

You don't even have to come into the office in order to upload and download the data. Using Trimble's TerraSync software you can receive and send files directly from the field via e-mail. To save even more time, configure the software to automatically search the Internet for a suitable base station for differential correction.

Easy to learn and use

GPS Pathfinder Office operation is intuitive, with easy-to-use screens, seamless data flow, and a comprehensive online help system. The software handles large amounts of data with ease.

Data compatibility

The ability to export data in a large number of coordinate systems and to a wide variety of GIS packages means you won't waste time ensuring data is compatible with your GIS system or with existing data.

GPS Pathfinder Office supports ArcView Shapefile, MapInfo MIF, Microsoft Access MDB, dBASE, AutoCAD DXF, and more. Additionally, the software can overlay your field data with both raster and vector-format data.

USING TRIMBLE GPS PATHFINDER OFFICE SOFTWARE

Before you go into the field, use the GPS Pathfinder Office software to plan your session, create a data dictionary to guide data collection, import existing data for update, and transfer the necessary files to the field computer.

Configuring the GPS Pathfinder Office software

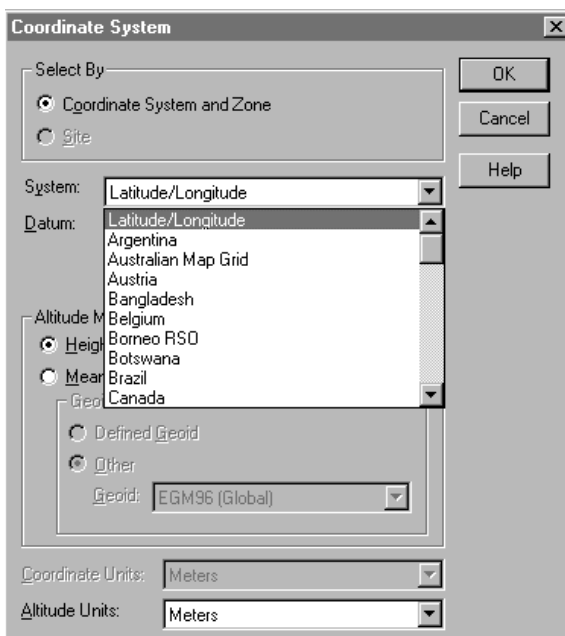
Creating project files

A project is a set of computer folders that store data files for a particular job. Projects efficiently organize related data files so they can be quickly located. Projects are particularly useful when more than one person is using the same computer to process field data.

Coordinate system

Coordinate systems are used to convert GPS data, which is collected on a curved grid, to a form where it can be used on the planar grid typically used in a GIS. Coordinate systems differ by region because the earth is not perfectly round.

A coordinate system lets you display collected GPS positions in relation to background maps, enter waypoint coordinates, print or plot maps, import/export coordinates from a GIS or spatial database, and enter manual positions.



Choosing the correct coordinate system

The GPS Pathfinder Office software displays and outputs GPS positions in a wide range of coordinate systems and zones. You can select a coordinate system from a list or create your own custom coordinate system. You can use custom coordinate systems in the office and transfer them to your GPS Pathfinder or GeoExplorer system for use in the field.

Preparing for field work

The GPS Pathfinder Office software provides powerful tools for planning data collection activities.

Identifying the best time to collect data

With the GPS Pathfinder Office **QuickPlan™** utility, you can identify the times of the day when satellites will be best situated to provide accurate position data for the areas you will be working in.

This helps ensure that the data that field crews collect is of the highest quality.

Data dictionary

A data dictionary is a list of features and attributes that you plan to collect in the field.

Whether you are collecting new data or updating existing data, a data dictionary ensures that the collected data is always consistent with your needs—even if more than one person is collecting it. In the field, the data dictionary structures and speeds up data collection and makes it easy for crews to enter data in the correct format. This helps to ensure data uniformity and integrity, as well as compatibility with your GIS database.

Creating a data dictionary

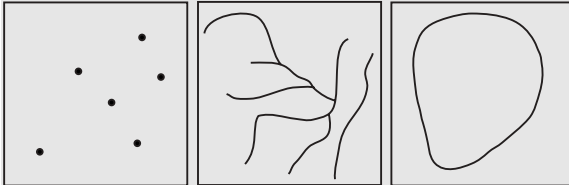
Use the GPS Pathfinder Office software to create data dictionaries that can be transferred to your Trimble field data collection software.

Using the **Data Dictionary Editor**, you can define the feature and attribute data to be collected in the field, create menu options, and set default values.

Alternatively, you can use the **Import** utility to convert an existing GIS file directly to a data dictionary.

Features and attributes

In general, features are things that you want to identify, describe, or locate. You describe them with attributes: for example, name of a park, or the condition of a sign, are attributes of those features. Trimble's TerraSync software lets you collect and maintain data for three types of features:



Points

- Road signs
- Power poles
- Nesting sites

Lines

- Roads/Trails
- Pipelines
- Rivers

Areas

- Parks
- Wetlands
- Land parcels

For **point features**, GPS positions are collected and averaged as you remain stationary at the feature.

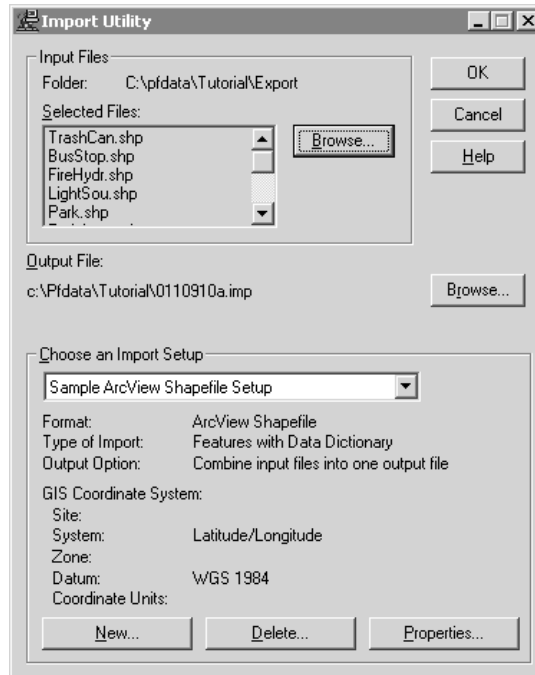
For **line features**, GPS positions are recorded periodically as you move along the feature. You can configure the system to record positions at regular intervals, or to average a number of positions to get a more accurate vertex position. These positions are joined to form a line.

For **area features**, GPS positions are recorded periodically as you move around the perimeter of the site (in the same manner as a line feature). These positions are connected to form the boundary of an area, with the last position automatically connecting back to the first.

Data maintenance

To verify or update existing data, use the **Import** utility to bring existing data from your GIS into the GPS Pathfinder Office software. Point, line, and area features, and their associated position and attribute information, can be imported from the following formats: ArcView Shapefile (SHP), Microsoft Access Database (MDB), dBASE IV (DBF), MapInfo (MIF), and AutoCAD (DXF).

In the field, use real-time differential GPS (DGPS) to quickly relocate features that need updating. Back in the office, you can check updated data and seamlessly merge it back into your GIS using the GPS Pathfinder Office **Export** utility.



Preparing the data collector for the field

Use the **Data Transfer** utility to transfer new data dictionaries, existing data files, and other necessary files to your field computer. If you are using Trimble's TerraSync software you can even e-mail the prepared files directly to field personnel, avoiding an unnecessary trip to the office.

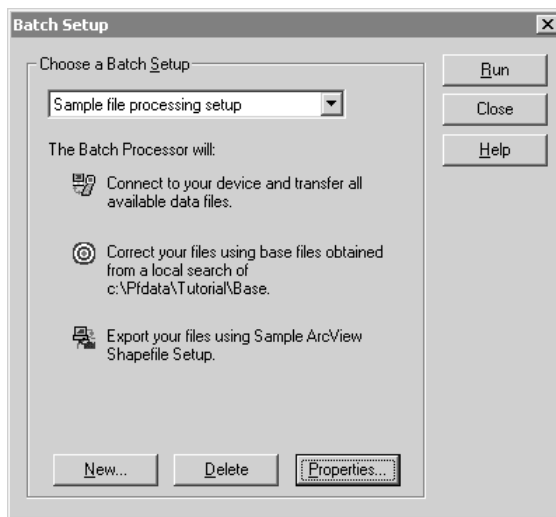
If you use version 2.10 or later of the TerraSync software you can use the **Configuration Manager** to set up multiple units with the same settings before leaving the office. These settings can be locked and protected to prevent them from being changed in the field. This gives you confidence in the quality and integrity of the data.

BACK IN THE OFFICE

Back in the office, the GPS Pathfinder Office software makes downloading and processing data fast and easy.

Batch processing

With the **Connection Manager** and **Batch Processor**, you can set up your system to download and process data while you are away from the computer—even overnight. The Batch Processor runs the Data Transfer, Differential Correction, and Export utilities, using settings that you specify, so you can automate routine tasks. You can also use the Batch Processor to run a specific command, such as moving data to a network location or running your GIS software.



Differential correction

A GPS position is subject to a number of errors that interfere with accuracy. Differences in the timing devices in the satellites and the receivers, orbit errors, the earth's atmosphere and receiver noise are just a few of the things that reduce accuracy. However, these errors can be removed by a process called differential correction. Differential correction can be done after the data is collected or as it is being collected in the field.

Field correction uses a telemetry link between the base station and the field data collection system. This is called real-time differential GPS (DGPS).

Today, a variety of DGPS sources are available, these include MSK beacons found in coastal areas and major waterways around the world; commercial satellite-based services available world-wide; and, in the US, the government operated Wide Area Augmentation System (WAAS). By making use of real-time DGPS, you can easily relocate features, verify data and make decisions in the field.

If you are in an area not yet covered by any of these correction sources, you can make use of the existing network of reference stations to postprocess your data. Look for one of the following reference stations in your area:

- Trimble Reference Stations (TRS)
- GPS Pathfinder Community Base Stations (CBS)
- Continuously Operating Reference Stations (CORS)
- University NAVSTAR Consortium (UNAVCO) reference stations
- International GPS Service (IGS) reference stations.

The Differential Correction utility provides a list of many of the available sites. It can automatically search for the correct base data and download files directly from these sites.

Postprocessing

If your field data was collected without a real-time differential source, or if coverage was intermittent, you will need to postprocess the data to improve its accuracy.

You can postprocess your data in GPS Pathfinder Office. The software automatically detects uncorrected GPS positions and corrects them for you. You can browse the Internet to locate base station files for differential correction based on your work location and the time of day.

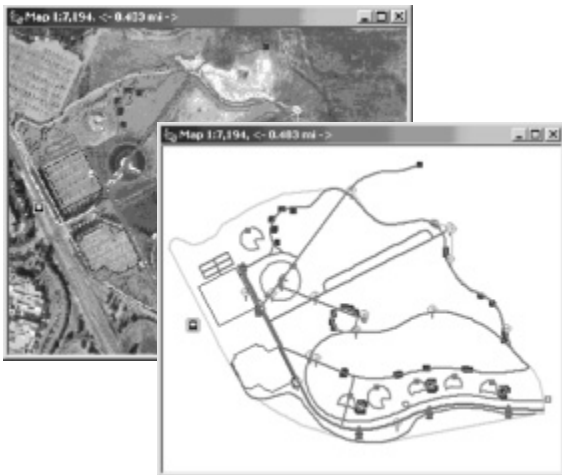
If you have collected data using Trimble's unique SuperCorrect™ technology (available with TerraSync version 2.10 or later), you can re-process your data in the office to improve position yield and accuracy. Using SuperCorrect you can postprocess your field data using different filters and settings to those you used in the field, giving you complete control over data integrity.

Viewing data

Before transferring processed data to the GIS or database, visually check the data to confirm it is complete and error-free. The GPS Pathfinder Office software offers two options for viewing your data: a map view and a time line view.

Map view

The **Map** view can display a number of data files at a time. Choose from a wide range of fonts, symbols, colors and line styles to tailor your data display to match your GIS. Zoom, pan, and select features to view detailed information about them. And, you can also use the map to measure distances and graphically edit the data file to remove unwanted positions and features.



The ability to layer background files, both raster and vector, makes it possible to view your collected data against aerial photographs and topographical maps. GPS Pathfinder Office supports a variety of data formats including MrSID, ArcView Shapefiles, AutoCAD DXF files, and geo-referenced TIFF, JPEG, and bitmap files. Data can even be downloaded from a Web map server and used directly in the GPS Pathfinder Office software.

Raster format

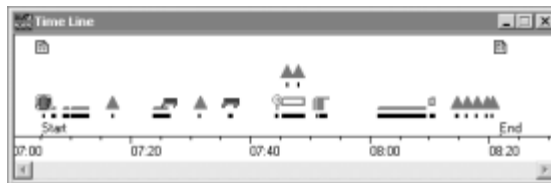
Images containing individual dots with color values, called cells (or pixels), arranged in an evenly spaced grid. Georeferenced aerial photographs and satellite images are typical examples of data provided in raster format.

Vector format

Data stored as XYZ coordinates that describe points, lines, areas, and volumes. Street centerlines and property boundaries are typical examples of data provided in vector format.

Time Line view

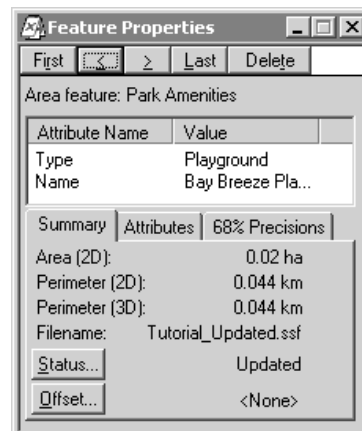
The **Time Line** allows you to display and review your data, or locate a feature, according to the time it was recorded.



Editing data

GPS Pathfinder Office software offers a number of powerful tools that allow you to edit the field data, remove unwanted data points, or create line or area features from end or corner points.

In the **Feature Properties** window you can edit the attributes and offset information of any feature. And using the **Position Properties** window you can remove individual positions from a feature. The Block Delete option allows you to delete all positions within a defined boundary.



Printing files

When you require a map to carry into the field or use as a handout, you can send a map from the GPS Pathfinder Office software to any Microsoft Windows-compatible printer.

Exporting data files to GIS

The **Batch Processor** is a convenient way to export large amounts of data to your GIS. However, you can also use the **Export** utility to configure and transfer data. GPS Pathfinder Office supports a wide variety of common GIS file formats. Or you can create a template for exporting to your own ASCII format. The **Export** option allows you to filter out data that does not meet your quality standards.

Supported file formats

GPS Pathfinder Office supports ArcView Shapefile, MapInfo MIF, Microsoft Access MDB, dBASE, AutoCAD DXF, and more.

CONCLUSION

Trimble's GPS Pathfinder Office software is the vital link between your field data and your GIS system.

The software offers a wealth of time-saving tools, making it easy to collect, update, and manage large quantities of data. With consistent, reliable data in your GIS, you'll have the information that you need to make quality decisions.

SYSTEM REQUIREMENTS

Recommended hardware

Computer

Pentium 133 MHz microprocessor
64 MB of RAM (32 MB minimum)
160 MB hard disk (80 MB minimum)
CD drive

Operating system

Microsoft Windows 95, 98, Me, NT 4 (service pack 4 or later), 2000, and XP (Windows 95 minimum)

Internet

LAN connection or 28,800 bps dial-up modem
Internet connection

Standard components

Software CD
On-line documentation
Getting Started Guide
Release Notes
Tutorial and sample files

Languages

English, Chinese, French, German, Japanese, Korean, Portuguese, Russian, and Spanish.



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