

Franson GpsTools <http://franson.com/gpstools>

© 2002-2005 Franson Technology AB, All rights reserved

**TIP!** Use [GpsGate](#) to simulate a GPS during development.

.....

## Franson GpsTools ActiveX Windows

### Install

[Install GpsTools SDK](#) describes how to install the SDK 2.0 (and later).

### Develop

[Visual Basic samples.](#) How to get up and running using Visual Basic and GpsTools. A description of all included samples.

[Internet Explorer and JavaScript](#) How to include GPS support to your Javascript/HTML web page. Description of included sample.

[Visual C++ / MFC](#) How to include GPS support to your VC++/MFC application.

[GpsTools Studio](#) A guide on how to create your own maps and icons to include in your application.

### Distribute

[GpsTools distribution.](#) How to install GpsTools v2.0 (and later) on end user machines.

.....

### More usage of GpsTools:

[GpsTools + GpsGate integration.](#)

Run multiple GPS applications at the same time, sharing the same GPS.

.....  
[More samples](#) The SDK contains many samples, and here are some more samples not found in the SDK.  
.....

[Access GPS from Internet Explorer](#)

Get GPS coordinates into your HTML page using GpsTools.  
.....

.....  
**Technical support** can be found in the user forum. We will constantly monitor and answer questions in the forum. The forum also includes frequently asked question (FAQ).

[General FAQ for GpsTools](#)

[Browse the Technical support forum!](#)

[Search the Technical support forum!](#)

---

## Install GpsTools SDK

Steps to install:

1. [Download](#) and unzip GpsTools SDK.

## 2. Run Setup.exe

NOTE! The Visual Basic 6.0 runtime environment must be installed for GpsTools Studio to work. If you don't have it installed already it can be downloaded from Microsofts ftp-server <ftp://ftp.microsoft.com/softlib/mslfiles/vbrun60sp3.exe>

## [Index](#)

---

## Getting started with Visual Basic and GpsTools

First make sure GpsTools SDK is installed properly. [Click here for more information](#)

**Examples** The best and easiest way to get started is to take a look at the examples.

### Location

GpsTools SDK v2.0 and later. Select "Start->Programs->GpsTools SDK->Samples->ActiveX". Then open the "VB" folder. For v1.34 The samples are located in the `Samples\` directory.

### Sample 1 - SerialPortNoEvents

Reads data from the serial port and parses NMEA 0183 data (standard GPS protocol). Presents position as latitude, longitude, UTM coordinates, (or other supported national coordinate system). Displays speed and satellite information.

This sample **does not use events**. If you are a novice VB programmer, this is a good sample to start with.

Uses **GpsToolsXP.dll**

### Sample 2 - SerialPort

Does the same as the sample above, but it **uses events**. If you are an more advanced VB programmer, this is a good sample to start with.

Uses **GpsToolsXP.dll**

### Sample 3 - SimpleMap

Demonstrates the new **raster map** functionality. Connects a GPS to a map. Draws and handles graphical objects on a map, zoom and rotation and much more. Handles mouse events. And more...

Create your own MapLibs using [GpsTools Studio](#).

Uses **GpsToolsXP.dll, GpsViewXP.dll**

### Sample 4 - Layers

Draw objects on several of layers and how to manage layers.

Uses **GpsToolsXP.dll, GpsViewXP.dll**

### Sample 5 - MultiMap

Switch between different raster maps. Use and define blank maps.

Uses **GpsToolsXP.dll, GpsViewXP.dll**

### Sample 6 - Grid

Samples for **coordinate conversion** in both directions between latitude/longitude and national grids. E.g. UTM, British Grid, Irish Grid, Swiss Grid and Swedish Grid. [List of supported grids](#)

Uses **GpsToolsXP.dll**

### Sample 7 - Log

Reads and parses NMEA data from a logfile.

Uses **GpsToolsXP.dll**

### Sample 8 - ShapeDrawer

Draws polygons, polylines and multipoints.

Uses **GpsToolsXP.dll**, **GpsViewXP.dll**, **GpsShapeXP.dll**

### Sample 9 - ShapeFileViewer

Load and display ESRI shapefile.

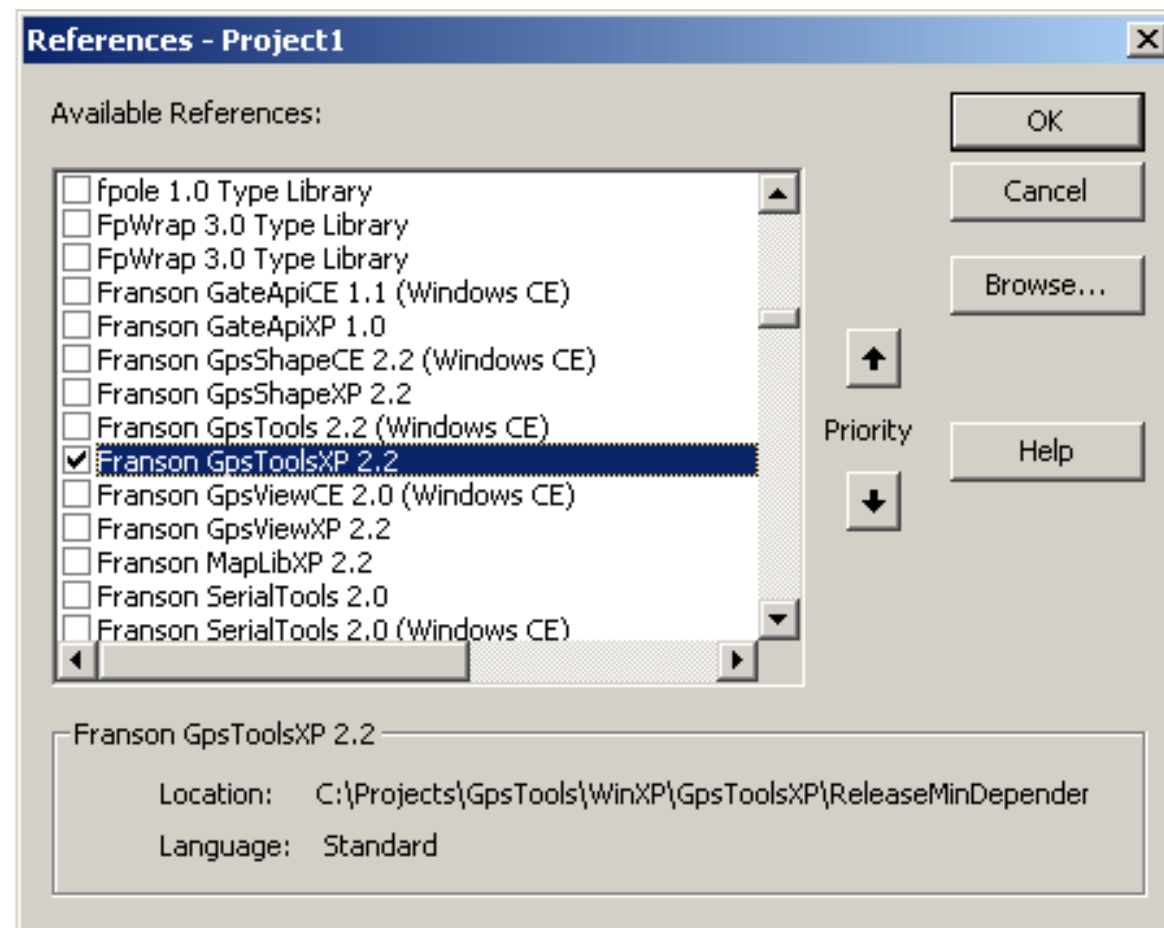
Uses **GpsToolsXP.dll**, **GpsViewXP.dll**, **GpsShapeXP.dll**

**A License key** is necessary to use GpsTools. During development the key found [here](#) can be used. To distribute the component as part of your application you need to [purchase](#) a license. The [License.LicenseKey](#) property must be set to a valid license key by your application or else the component will refuse to work properly.

To get GPS access and coordinate transformation:

**Reference** GpsToolsXP.dll (and possibly GpsShapeXP.dll) from Visual Basic.

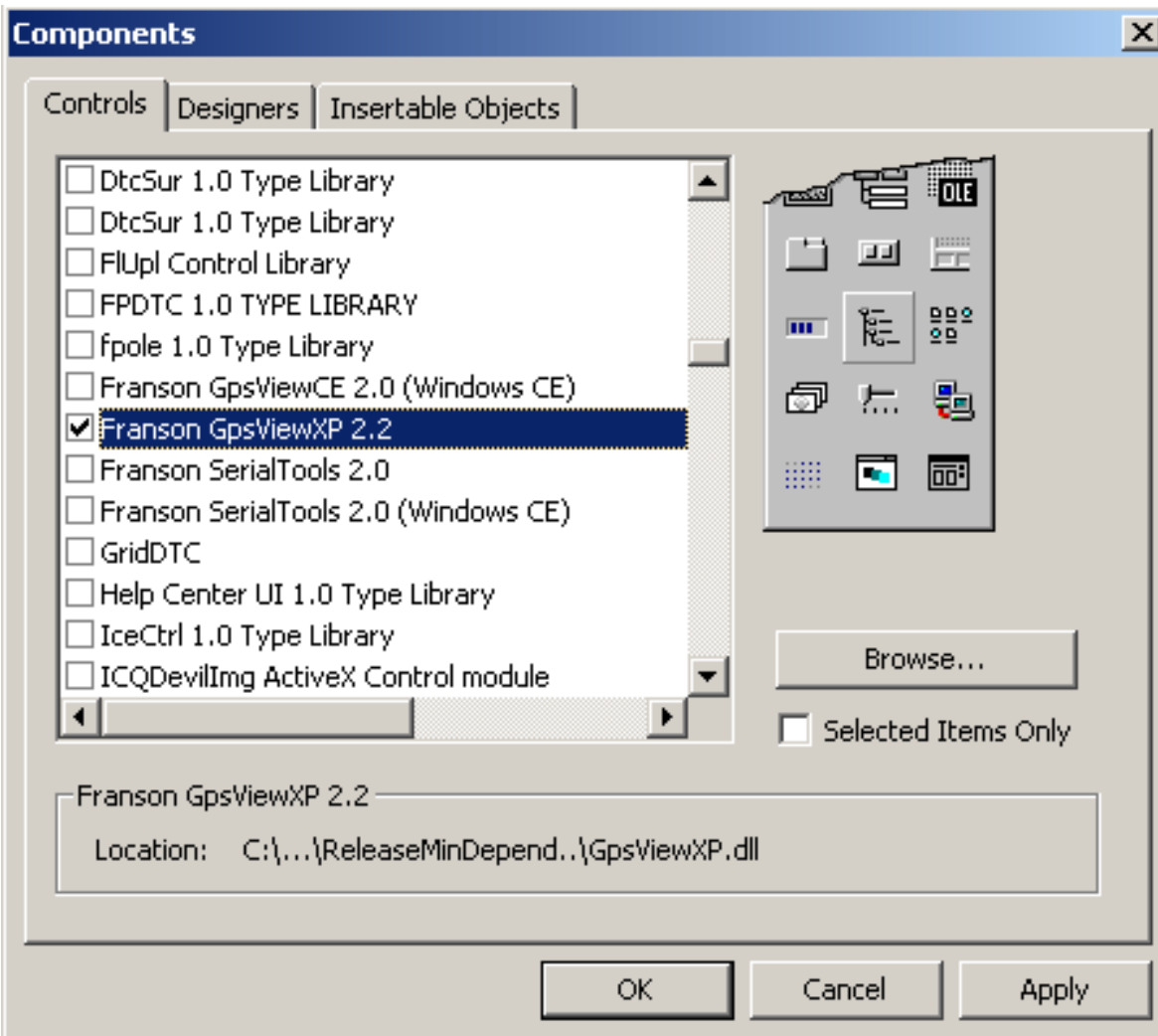
Select "Project -> References..." from the Visual Basic menu.



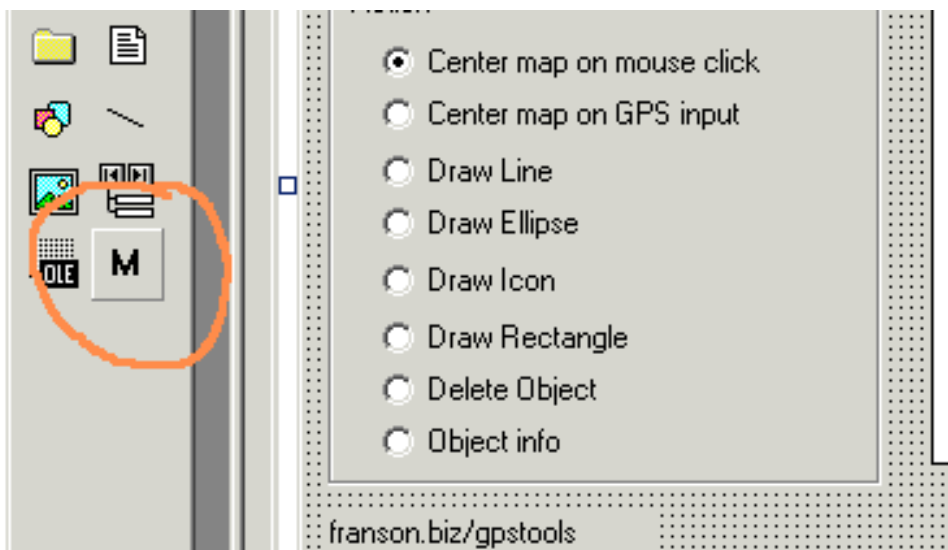
If you want to use the raster map support:

**Reference** GpsViewXPctl.dll from Visual Basic.

Select "Project -> Components..." from the Visual Basic menu.



And to select the component into a form:



**A few things about the GPS.** Remember that a GPS works poorly indoors. Sometimes it is possible to get a fix near a window, but usually not. The GPS must be configured to transmit NMEA data.

**Note!** USB and PC-card GPS:es needs a serial port driver to work with GpsTools.

[Index](#)

## Getting started with Internet Explorer and GpsTools

First make sure GpsTools SDK is installed properly. [Click here for more information](#)

**Examples** The best and easiest way to get started is to take a look at the example. In the zip-file distribution one JavaScript sample can be found.

### Sample 1 - serialport.htm

Includes GPS support on a normal html web page. Reads data from the serial port and stores the position in a form that can be posted to a server.

**A License key** is necessary to use GpsTools. During development the key found [here](#) can be used. To distribute the component as part of your application you need to [purchase](#) a license. The [License.LicenseKey](#) property must be set to a valid license key by your application or else the component will refuse to work properly.

**A few things about the GPS.** Remember that a GPS works poorly indoors. Sometimes it is possible to get a fix near a window, but usually not. The GPS must be configured to transmitt NMEA data.

### [Index](#)

---

## Getting started with Visual C++ and GpsTools

First make sure GpsTools SDK is installed properly. [Click here for more information](#)

**Sample:** `Samples\C++\SerialPortCPP`

A VC++/MFC project. Reads data from the serial port and parses NMEA 0183 data (standard GPS protocol). Presents position as latitude, longitude, UTM coordinates, or any supported national coordinate system.

**All variables** in GpsTools are **Variants**. This is to support all kinds of COM enabled script languages. The type information (e.g. String, Integer, etc.) that are specified in the reference manual are the Variant type and nothing else. For Visual Basic and script language developer this is of no major concern, everything is handled automatically, but VC++ developers need to be aware of this.

GpsToolsXP.dll is an **ActiveX Library** and not an ActiveX Control. This means you cannot drag'n drop the component into your VC++ form, instead you need to make an import using the ClassWizard.

**A License key** is necessary to use GpsTools. During development the key found [here](#) can be used. To distribute the component as part of your application you need to [purchase](#) a license. The [License.LicenseKey](#) property must be set to a valid license key by your application or else the component will refuse to work properly.

**A few things about the GPS.** Remember that a GPS works poorly indoors. Sometimes it is possible to get a fix near a window, but usually not. The GPS must be configured to transmitt NMEA data.

**Note!** USB and PC-card GPS:es needs a serial port driver to work with GpsTools.

### [Index](#)

---

## Developer's Guide - GpsTools Studio

**NOTE!** If you want a library (.NET/ActiveX) that can make MapLibs out of BMP and GIF files, take a closer look at the MapLibXP/MapLibNET components. Start reading about the [zMapLib](#) class.

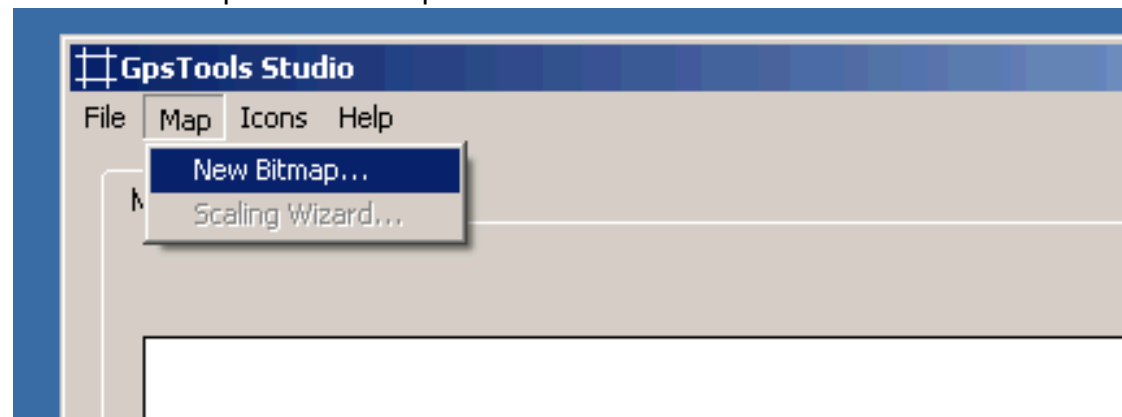
GpsTools Studio is used to create and edit MapLibs. A MapLib contains a raster map and icons to be used in your application.

After installing GpsTools SDK 2.0 (or later) you can find GpsTools Studio under  
Start->Programs->GpsTools SDK->GpsTools Studio

### Create a new MapLib

You need to have a raster map in GIF or BMP format.

To create a map from a bitmap:



The raster map must be **conformal**.(\*) This means lines from south to north must be orthogonal to lines that goes from west to east. The map can be rotated. The scale can be different (or same) in north/south direction than west/east direction.

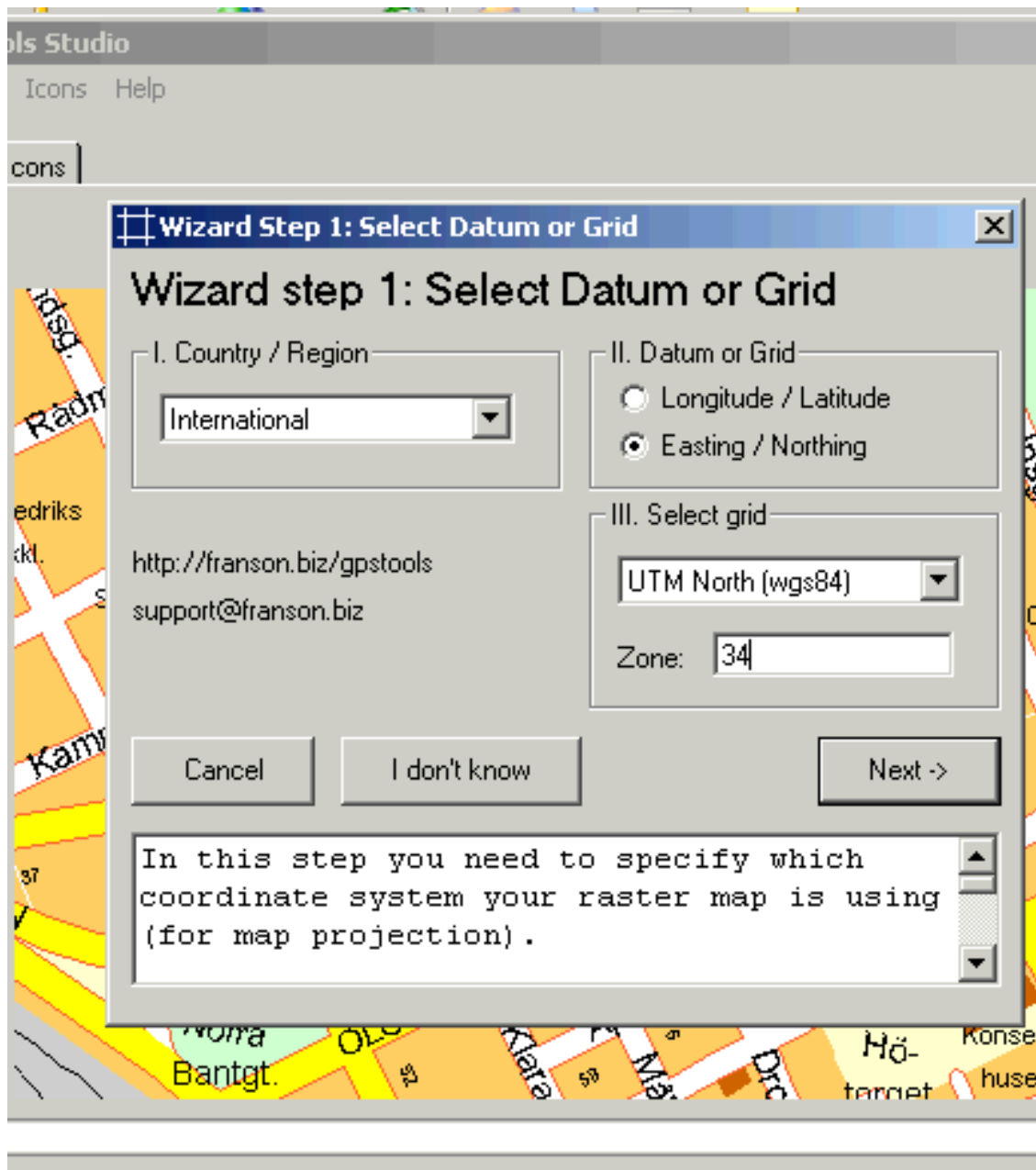
After the bitmap is loaded a wizard will start to scale the raster map. What you need is three positions on the map with know geographic coordinates. You also need to know which coordinate system the map is using. If you are unsure use UTM, and use the method presented under "Verify scaling" below to see if you made the right choice.

#### Wizard step 1 - Select Datum or Grid.

In this step you need to specify which coordinate system your raster map is using.

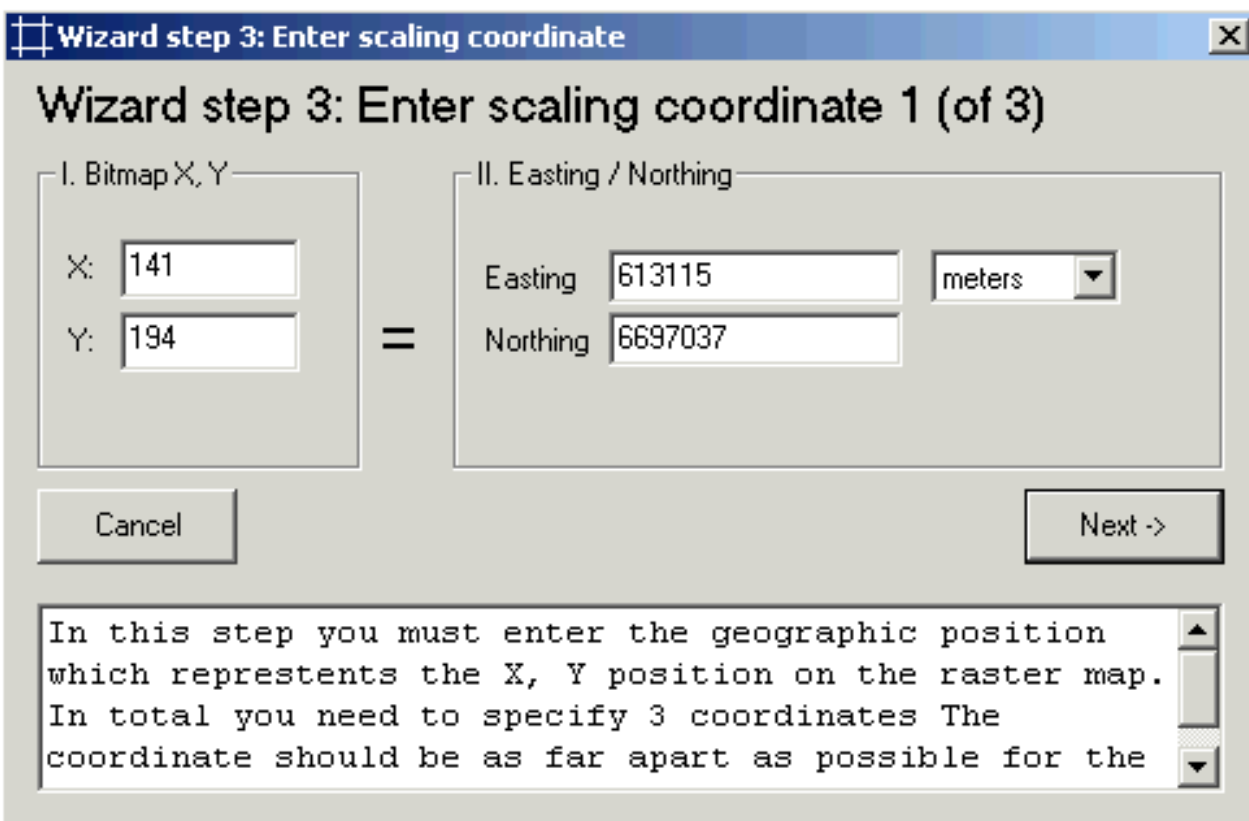
- I. Select a Country / Region.
- II. Select if the coordinates are specified in lat/lon or easting/northing
- III. Select the a grid or datum.

The coordniate system choosen is that in which the map is conformal.



### Enter coordinates

After selecting coordinate system, click somewhere on the map and this dialog shows up:



You must enter the geographic position which represents the X, Y position on the raster map. In total you need to specify 3 coordinates The coordinate should be as far apart as possible for the best results. Try to place them in opposite corners.

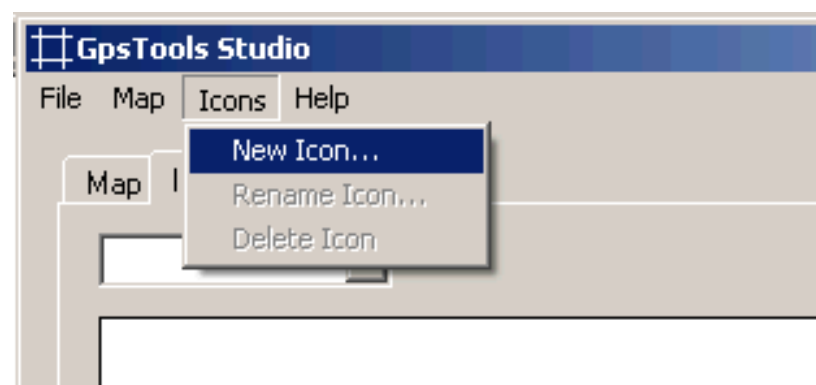
### Verify scaling

To verify that everything is ok, click on some other known position on the map and verify that the geographic coordinate show in the bottom line of the window is correct.

### Create Icons

You can create icons (bitmaps) which you later can be drawn on the map in your application.

To create a new icon select:

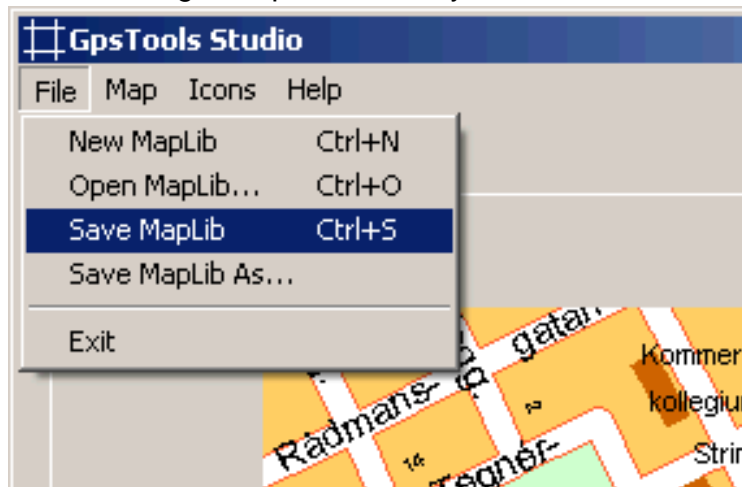


The Icon's bitmap must be a BMP or GIF. If the GIF has a transparent color, it will be transparent in the MapLib as well. After loading the bitmap, you need to name the Icon. This name will be used to refer the Icon in your application. See [Map . NewIcon](#)

Any number of Icons can be created. Use the menu to rename, delete and create new Icons.

### Save MapLib

After creating a Map and Icons, you need to save the MapLib:



Now the MapLib is ready to be used by your application. See [Map . Open](#).

(\*)Conformality expressed in a more formal way:

When the scale of a map at any point on the map is the same in any direction, the projection is conformal. Meridians (lines of longitude) and parallels (lines of latitude) intersect at right angles. Shape is preserved locally on conformal maps.

[Here you can find some online map resources](#)

[Index](#)

## Developer's Guide - Distribute GpsTools

There are two ways to distribute GpsTools.

1. Use the GpsTools RunTime installation and install it on the end user's computer.
2. Include the necessary DLL:s in your own installation program.

### Distribute using GpsTools RunTime:

1. [Download](#) and unzip GpsTools RunTime on the end user's computer. (You may also distribute the installation program in your own distribution package).
2. Run `Setup.exe` on end user's computer.

### Custom installation:

Install `GpsToolsXP.dll` and `GpsViewXP.dll` in the System32 directory. You can find the DLL:s under the System32 directory on the computer you have installed the SDK.

`GpsViewXP.dll` is only necessary if you use the raster map feature.

[Index](#)

License	<a href="#">Pro + GpsGate OEM</a>
Version	GpsTools 2.20 (or later) GpsGate 1.10 (or later)

## Share the GPS using GpsTools and GpsGate

**GpsTools** and [GpsGate](#) enables you to write GPS applications that can run at the same time as other applications sharing one single GPS. This can be very useful when for example developing an application that is a complement to a mapping or navigation program.

You can think of GpsGate as a program that turns a GPS into a shared "multi-GPS" and you can think of GpsTools as a toolkit for programmers who want to develop their own GPS applications in Visual Studio.

The standard way to access a GPS is by using a serial port. GpsGate provides virtual serial ports which emulates GPS receivers. Applications connecting to those virtual ports think they have connected to a real GPS (exclusively).

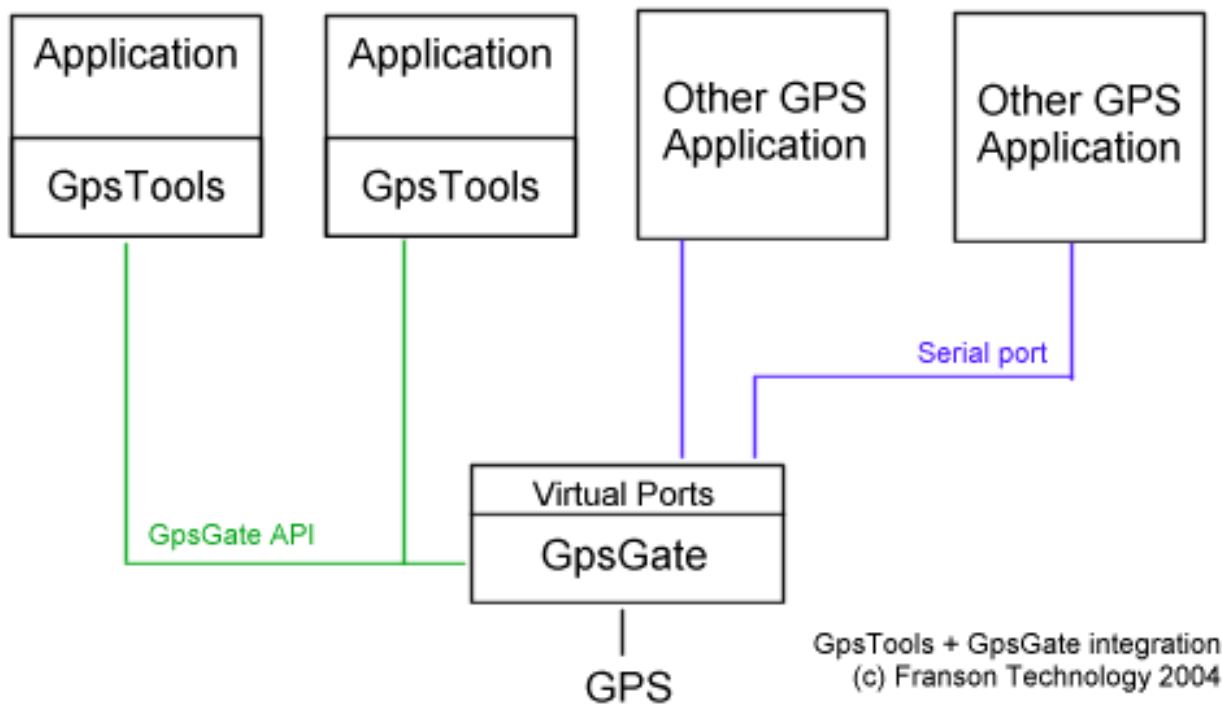
GpsTools can make use of GpsGate in a very clever way. It can detect if GpsGate is installed and use GpsGate in that case. For detailed information on how this is done see `NmeaParser.PortEnabled` (Method 4 - GpsGate Direct and Method 1 - Auto detection).

GpsTools uses [GpsGate API](#) to start GpsGate and get access to GPS data, this is done without any use of virtual serial ports. This takes away some configuration from the end user and makes the whole solution simpler to use and more robust.

Note that GpsTools handles all calls to GpsGate API. Applications that wants to use GpsGate without GpsTools can do that by accessing [GpsGate API](#) directly, or by using the virtual serial ports created by GpsGate.

GpsTools can be used to acces GPS data from a normal **HTML** page in **Internet Explorer**. In this case it is particular well suited to use GpsGate, since it enables several opened browser windows to share the GPS at the same time.

The end user must also have a valid GpsGate license or your application must call `License.GateLicense` to install a valid GpsGate Express license.



You can bundle your application based on GpsTools Pro with GpsGate Express for a [low fixed price](#). Using this solution your application can co-exist with other GPS applications and run at the same time using the same GPS.

This will be experienced as a great benefit to your users/customers.

GpsGate Express has two virtual ports which any 3rd party GPS application can connect to. And GpsGate API, which any number of GpsTools based or other GpsGate API enabled application can connect to. In most cases this means you can share the same GPS with two other GPS applications. For an unlimited number of virtual ports GpsGate Standard is required.

**Distribution** GpsGate must be installed as a separate application on the end users computer/device. Those links can be used for the latest version of GpsGate:

Windows:

<http://franson.biz/gpsgate/download.asp?section=oem&partner=generic&platform=winxp>

Pocket PC:

<http://franson.biz/gpsgate/download.asp?section=oem&partner=generic&platform=ppc>

[Go back to index](#)

License	<a href="#">Standard (ActiveX)</a>
Version	GpsTools 1.30 (or later)

## Access GPS from Internet Explorer HTML page

Using **GpsTools** you can access a **GPS** connected to your laptop or Pocket PC from Internet Explorer (or PIE). This means you can include position information into a normal **HTML form** and post it up to a web server!

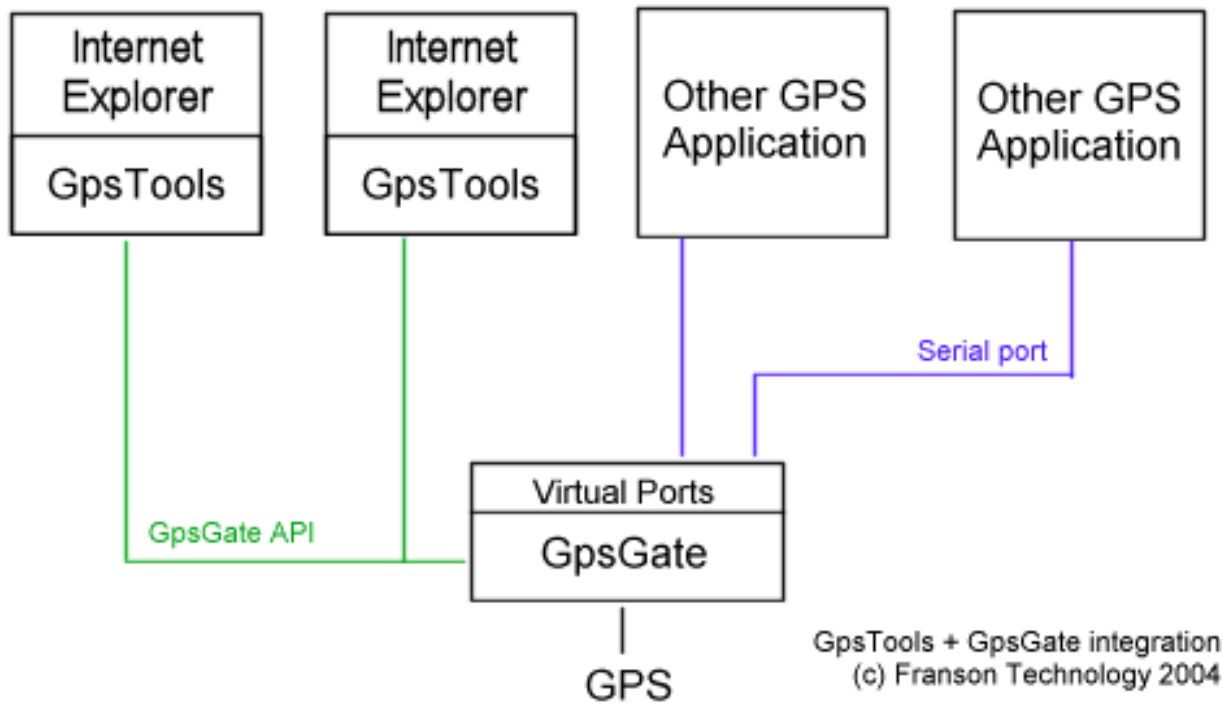
GpsTools SDK includes samples for Windows and Pocket PC / Windows CE.

The connection to the GPS will be exclusive which means only one browser can connect to the GPS at a time, and no other GPS applications can use the GPS while the web page using the GPS is opened.



For a more flexible solution you can use GpsGate in combination with GpsTools. This will allow any number of web pages, and any number of GPS applications share the GPS at the same time. No limitations.

[Read more about GpsTools + GpsGate integration here.](#)



[Go back to index](#)

If you got any project based on GpsTools you want to **share**, please let us know and we'll publish it here. [Use this form to contact us](#)

## NAVPDA

By **Robbie Robinson**, robbiex@bellsouth.net

NAVPDA provides a Pocket PC display of speed, digital compass heading, compass points, elapsed distance, latitude, longitude and coordinated universal time (UTC).

[Read more...](#)

Download [NAVPDA \(VB.NET CF\)](#)

**Shapefile Cutter.** This sample can split an ESRI shapefile into smaller parts. If you have a huge shapefile from which you only need a part, you can use this sample application to cut the file into smaller files, covering smaller areas.

Download [Shapefile Cutter \(C# .NET\)](#)

Download [Shapefile Cutter \(Visual Basic, 6kB\)](#)

If you got any project based on GpsTools you want to **share**, please let us know and we'll publish it here. [Use this form to contact us](#)

[Index](#)



© 2002-2005 Franson Technology AB, All rights reserved (franson.com)