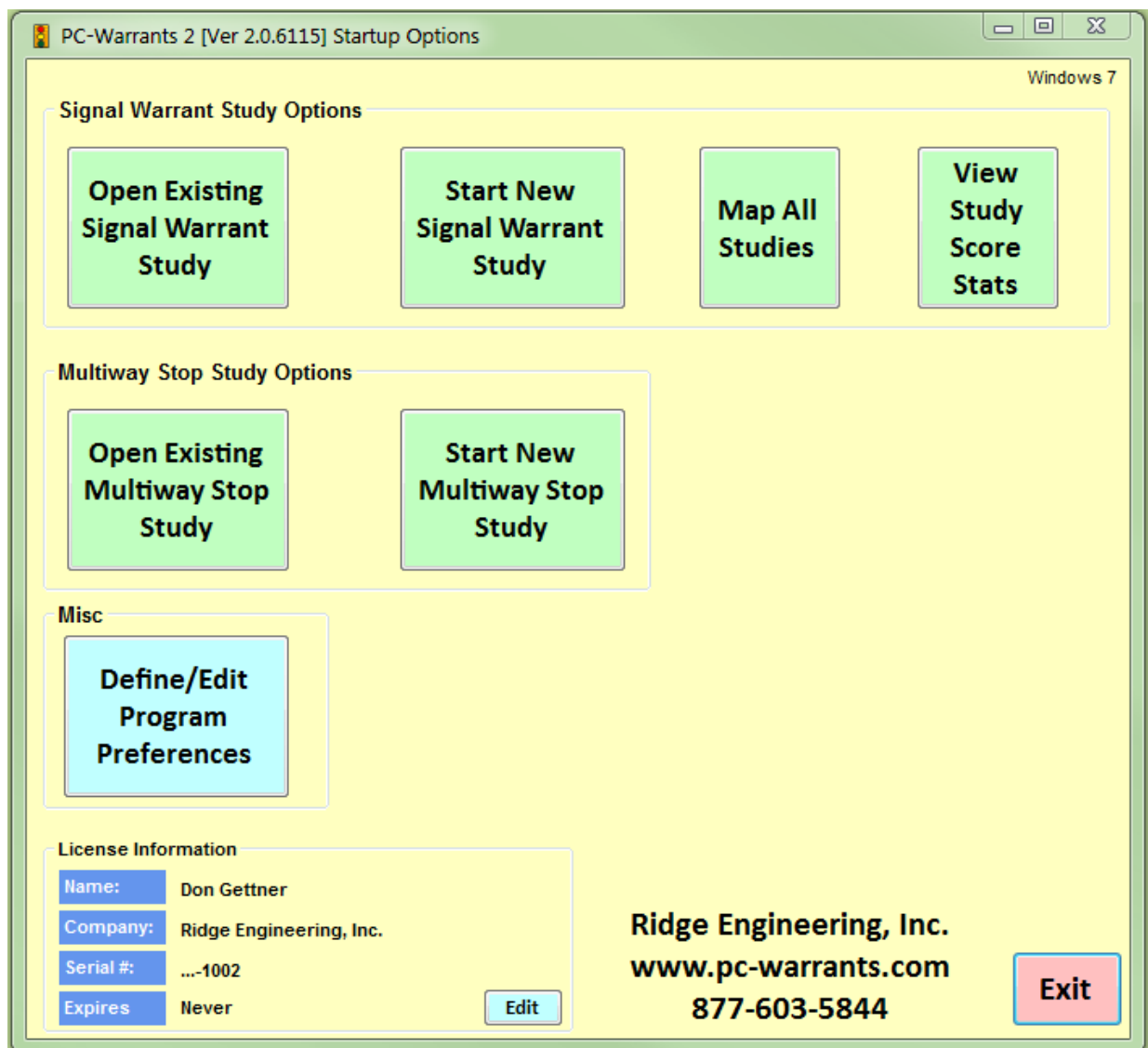


# PC-Warrants 2

## Quick Start Manual



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Monday – Friday 8:00 AM to 5:00 PM Eastern time

or via e-mail at:

**[support@pc-warrants.com](mailto:support@pc-warrants.com)**

For more information on our products, the latest news in product development, and to download software updates, visit our web site at:

**[www.pc-warrants.com](http://www.pc-warrants.com)**

Address any correspondence to:

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Temple Terrace, FL 33617**

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## **Quick Overview** **(If you really hate manuals)**

All files can be downloaded from the Downloads page at :

**[www.pc-warrants.com](http://www.pc-warrants.com)**

You want to download the latest installer package and the TatukGIS Viewer program.

Then:

- 1- Download and install PC-Warrants.
- 2- Enter your serial number into the PC-Warrants software.
  
- 3- Download and install TatukGIS Viewer.
- 4- Download the maps for the county or counties where your studies are located.
- 5- Create a new folder for the map files under the Maps folder of PC-Warrants. Normally you name the folder the name of the County (or Counties).
- 6- Unzip the map files you downloaded to this new folder.
- 7- Run TatukGIS Viewer and process the shapefiles into a TatukGIS project (watch the tutorial on the Tutorials page if you haven't done this before).
- 8- Save the map project as PCT.ppkp.

You are ready to go!

# Introduction to PC-Warrants 2

Welcome to PC-Warrants, a software program designed to perform traffic signal and multi-way stop sign warrant studies. This program allows you to perform some of the standard calculations required when determining whether a traffic signal (and multi-way stop signs) should be considered for installation at an intersection.

**Important Note:** The Manual on Uniform Traffic Control Devices (MUTCD) states, *The satisfaction of a traffic signal warrant or warrants shall not in itself require the installation of a traffic control signal.*

PC-Warrants does not report when a traffic signal should be installed, but rather when it should (or should not) be considered. If one (or more) of the warrant conditions is satisfied, then installation of a traffic signal can be considered further. **The final determination of whether to install a traffic signal should be based on the judgment of a traffic engineer.**

The MUTCD does provide guidance on when a traffic signal should **not** be installed.

1. A traffic control signal should not be installed unless one or more of the warrants are met.
2. A traffic control signal should not be installed unless an engineering study indicates that installing a traffic control signal will improve the overall safety and/or operation of the intersection.
3. A traffic control signal should not be installed if it will seriously disrupt progressive traffic flow.

This Reference Manual refers to using the 2009 Manual on Uniform Traffic Control Devices warrants.

## Computer Requirements

- Windows 7-10
- Screen resolution of 1400 x 900 or better.

## Software Updates

Updated versions of Ridge Engineering software are released periodically and are posted on the PC-Warrants support site. Licensed owners of PC-Warrants can download updates to the program to make sure they always have the latest version of the software. To download the latest version of PC-Warrants, go to [www.pc-warrants.com](http://www.pc-warrants.com) and then select **Downloads** from the list of options

# How to Install PC-Warrants

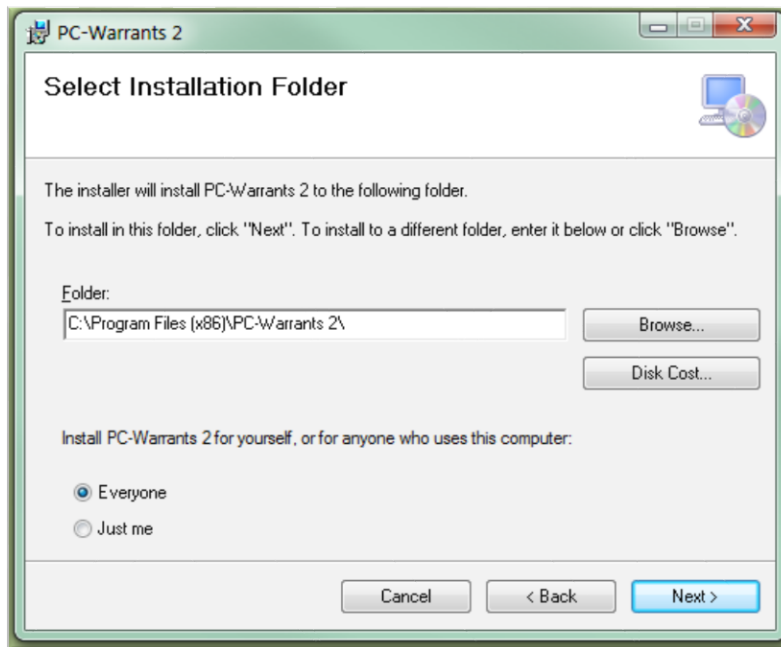
Download the installation program from the PC-Warrants.com support site, then unzip the file you downloaded to a convenient folder and run the Setup.exe file.

**Note: You need Administrative Privileges to install PC-Warrants. You may need to get your IT people to help you.**

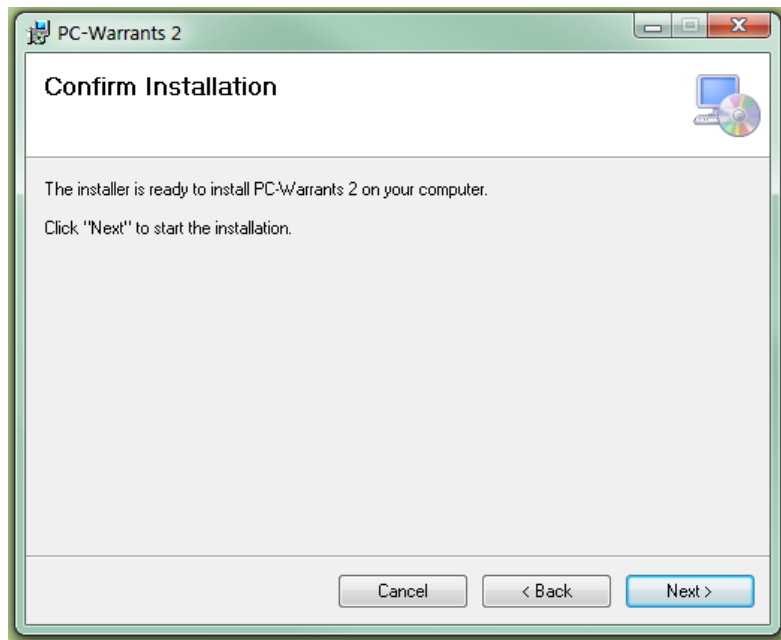
When you run the Setup.exe file you get the following screen:



Be sure all other programs are closed before proceeding with the installation. During the installation, files used by the program will be copied to your computer, including some Windows system files. If other programs are open and using some of the files that need to be installed, an error can occur. Make sure you close any programs that obviously are running (especially virus checkers) before you install this or any Windows-based software. Click the **Next** button to get started.



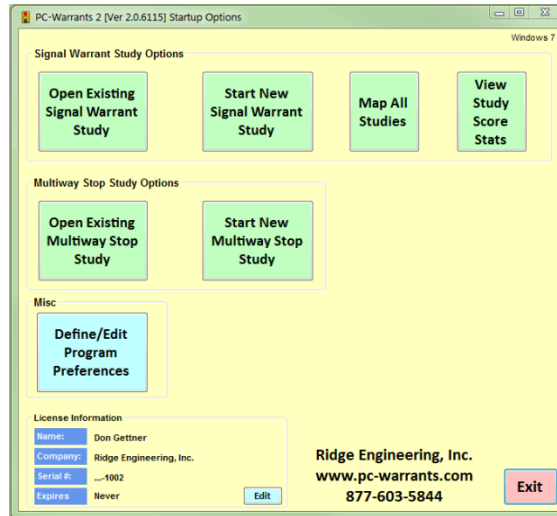
Next you need to select the folder where you will install the software. Usually you will just select the default value and click on the **Next** button. If you do want to change where the software is installed you can do it here (don't do this unless you know what you are doing).



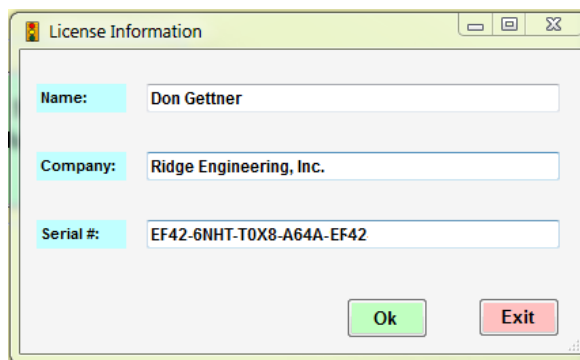
The software is now ready to be installed. **Click** the Next button and the program will install PC-Warrants. This will only take a short time. You will get a Confirmation screen (not shown) and then the software is ready to use.

# How to Enter Your Serial Number

Run PC-Warrants. This brings up the Startup Options screen, shown here:



Then click the **Edit** button near the bottom of the screen. This brings up this window:



Enter your Name, Company or Organization, and serial number. Make sure you enter the dashes "-" as well; they are part of the serial number.

Click **Ok**. The Registration window should disappear. If there was a problem with the serial number, which is usually just a typo error, the software will show an error message.

**Note: You need Administrative Rights to enter a new serial number since the serial number is written to the Registry of the computer. If you have problems with the serial number apparently not working, then check this. You may need to get your IT department to help.**

The software is now licensed and ready for use.



# How to Download and Install Maps

The US Government provides Census Data free of charge. Part of this data includes TIGER files which contains geographic and cartographic data of the entire country. In March 2008 the format for these files was changed to use standard files called Shapefiles. These files are now called TIGER/Line Shapefiles and can be downloaded for free from the Internet.

This section of the manual will show you how to download the shapefiles for your area and then how to add the symbology to make the shapefiles look good on maps.

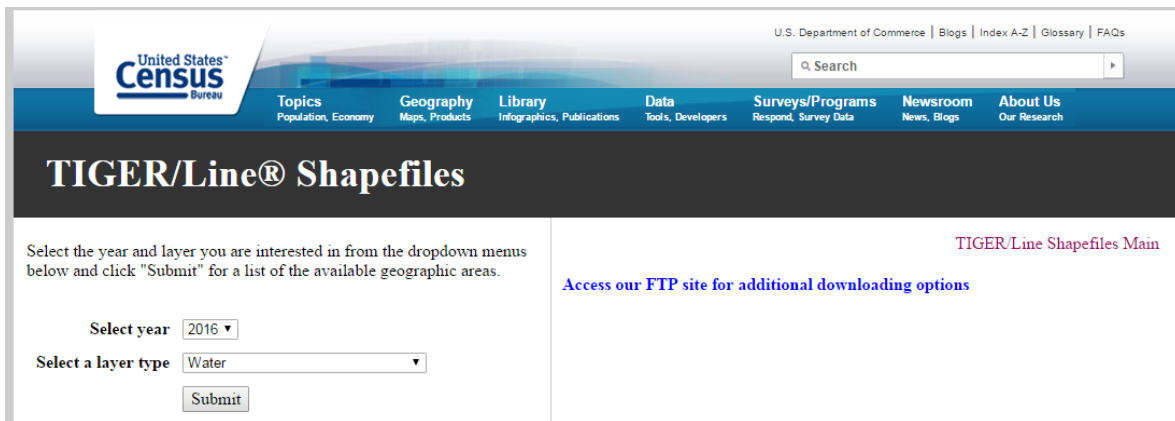
## Download Shapefiles

Go to <https://www.census.gov/geo/maps-data/data/tiger-line.html> (or Google TIGER/Line Shapefiles). This site has more information than you would ever want or need to know about TIGER shapefiles.

This brings up the screen shown here:

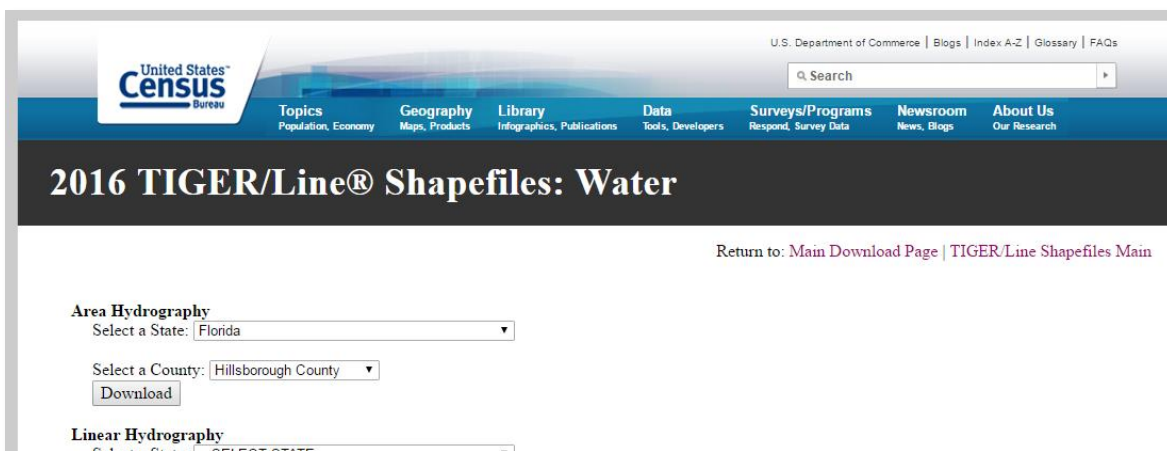
The screenshot shows the US Census Bureau website page for TIGER/Line Shapefiles and TIGER/Line Files. The page features a navigation menu at the top with categories like Topics, Geography, Library, Data, Surveys/Programs, Newsroom, and About Us. A sidebar on the left contains a 'Maps & Data' section with links to 'Maps & Data Main Page', 'Census Data Mapper', 'Reference', 'Thematic', and 'Maps Available for Purchase'. The main content area is titled 'TIGER/Line® Shapefiles and TIGER/Line® Files' and includes a list of links such as 'Format', 'How Do I Choose Which Vintage to Use?', 'Note on Special Characters Not Displaying Correctly', 'Working with TIGER/Line Shapefiles How-To Guides', 'FAQs', and 'Geography Change & Errata'. Below the links is a table for selecting a year, with '2016' and '1992' highlighted. At the bottom, there is a section for '2016 TIGER/Line Shapefiles' with buttons for 'Download', 'Technical Documentation', 'File Availability', and 'User Notes'.

Near the bottom of the screen you can select the Year (select the latest year), then click on the **Download** link, then select **Web Interface**.



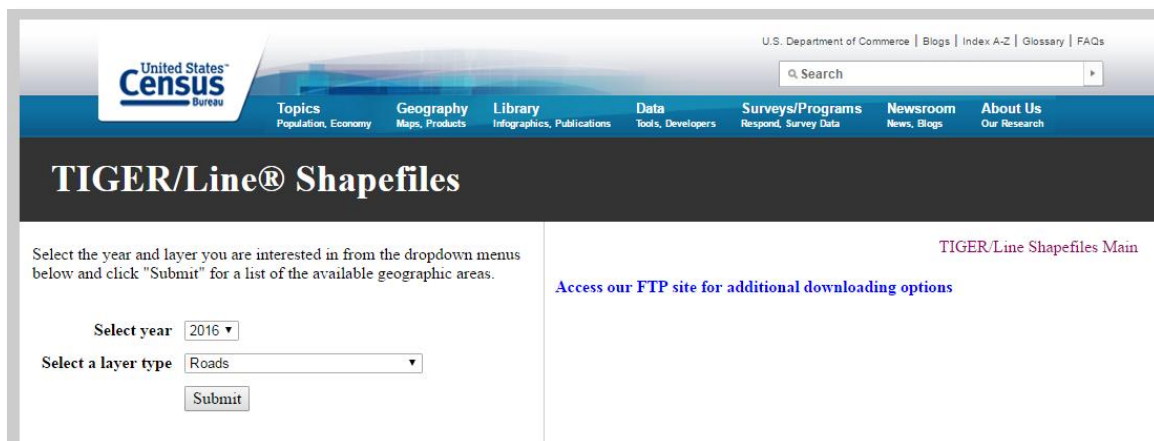
First, select Water, under the Features section in the drop down box, then click the Submit button.

Then select your State and County (make sure you select the Area Hydrography section, as shown above).

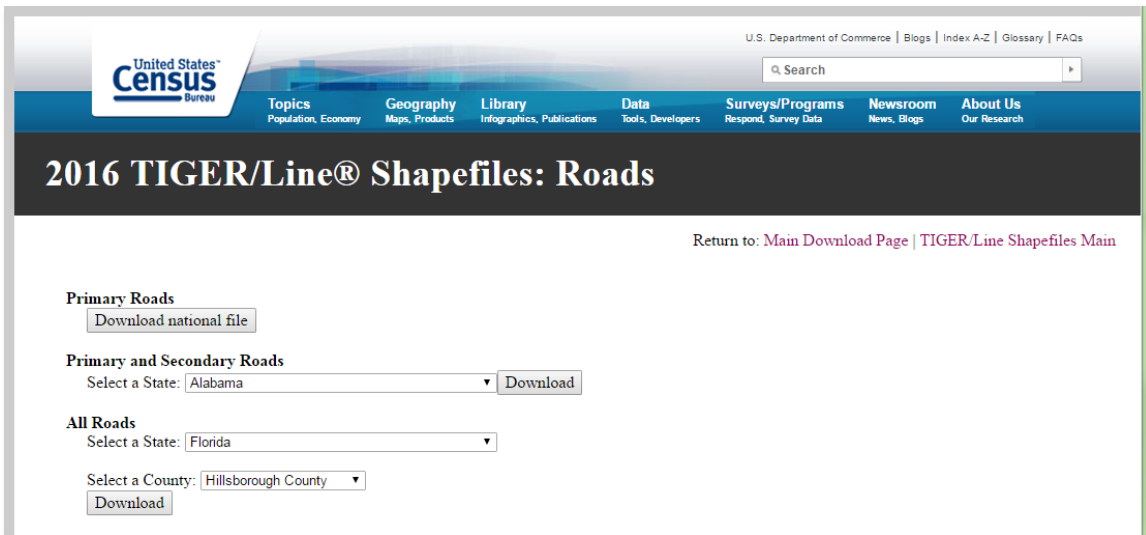


Click the **Download** button. The Water files for that county will be downloaded as a zip file, usually to your Downloads folder.

Now go back the previous screen where you selected the Water feature, but this time select the Roads feature from the drop down list then click on the **Submit** button, as shown here:



Then select your State and County again like you did before:



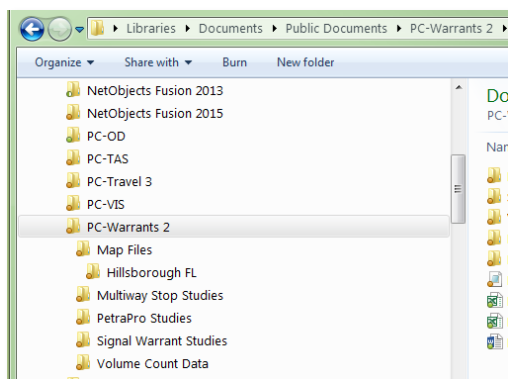
Click the **Download** button. The files for the Roads for your county will be downloaded to your computer as a zip file, usually to your Downloads folder.

You now should have two zip files in your Downloads folder (or wherever you had them downloaded).

You now want to make a folder for the files you downloaded.

When PC-Warrants 2 is installed, among other things, it creates a folder called PC-Warrants in the Libraries section of your computer. This is where the program stores files it needs. It also creates several folders under the PC-Warrants folder which can be used to store your study files and/or volume count files (you also may choose to store them on a remote server, but initially the software assumes you will use local folders). One of these folders is called Maps and is used to store the map files used by the software.

In Windows Explorer, navigate to the Maps folder under the PC-Warrants folder and create a new folder with the name of the County you downloaded in the previous steps.

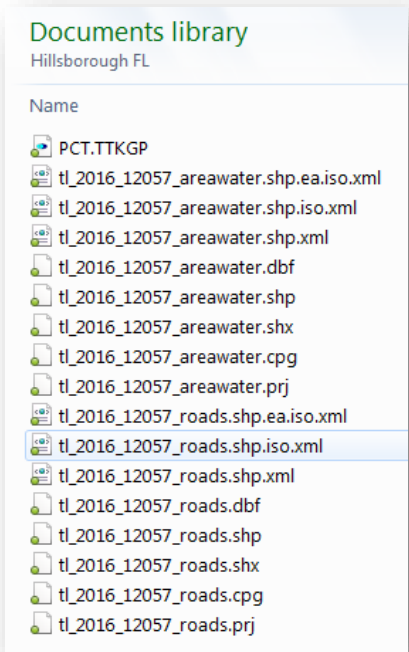


In the example shown here, we created a folder called Hillsborough FL which is where our offices are located.

Your screen should look similar.

Now copy the two zip files from your Downloads folder to this new folder you just created.

Unzip the files into that folder and then delete the two .zip files; you don't need them again.



You should have a bunch of files that looks somewhat like the image to the left here. There are two sets of shapefiles in the folder. The shapefiles have a very specific naming convention.

Your files of course will be a little different but they should have a similar looking naming convention.

You are now ready to create the map file project so that you can map your studies.

## Download and Install TatukGIS Viewer

The GIS engine used in PC-Warrants to display shapefiles is made by a European company called TatukGIS. This software integrates into Visual Basic .NET, which is the software used to write PC-Warrants 2. TatukGIS allows programs written in Visual Basic .NET to display maps, interact with the maps, print the maps, and a host of other map related operations. What is nice about this software is that there is no runtime license required, which means that when you buy PC-Warrants you don't have to worry about licensing the GIS engine as well. This isn't true for other GIS programs that work with Visual Basic .NET. TatukGIS supports shapefiles natively, which makes it easy to use, since we can get the shapefiles for free from the US Census Bureau.

TatukGIS makes a program called **TatukGIS Viewer** which is free for anyone to download and use. Among its many features is the ability to add *symbolology* to shapefiles. What this means is you can use the software to decide how different features look when displayed on maps. We will use TatukGIS Viewer to edit the shapefiles downloaded from the Census Bureau so that they look good on the Map screen in PC-Warrants.

You can download the TatukGIS Viewer install program from the [www.pc-warrants.com](http://www.pc-warrants.com) support site. Look on the **Downloads** page.

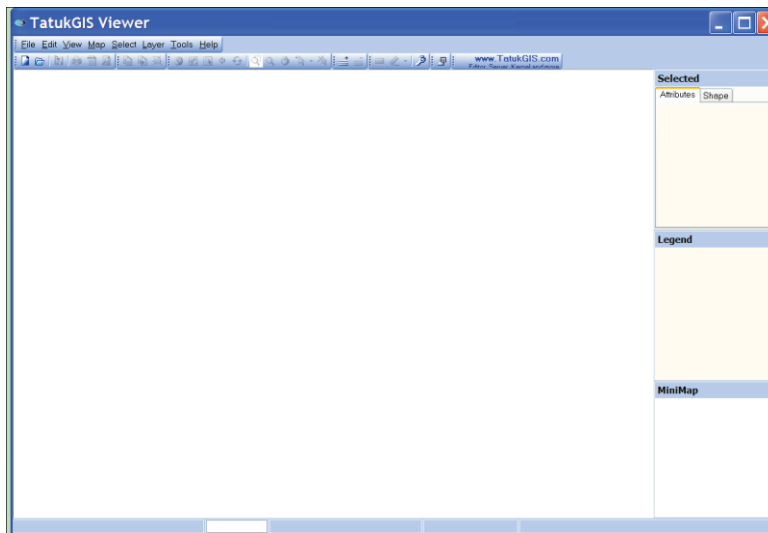
The installation is a standard Windows type install. Run the installer program and follow the directions. Normally there is no reason not to accept all of the default values. For convenience you should install TatukGIS Viewer on the same computer where you have PC-Warrants.

Once you have installed TatukGIS Viewer you can follow the procedure in the next section to edit the shapefiles.

## Edit Shapefile Properties In TatukGIS Viewer

**Note:** These directions assume you have followed the procedures in the previous section and have the shape- files in the folder you created, under the Maps folder. There also should be two .ini files in the Maps folder that were installed when you installed PC-Warrants: *TigerRoads.ini* and *TigerAreaWater.ini*.

Run **TatukGIS Viewer**. You will see a screen similar to the figure here.



Note: If a map is displayed then click on File:New Project to clear the screen. If the Legend panel is not visible then click View:Panels:Legend.

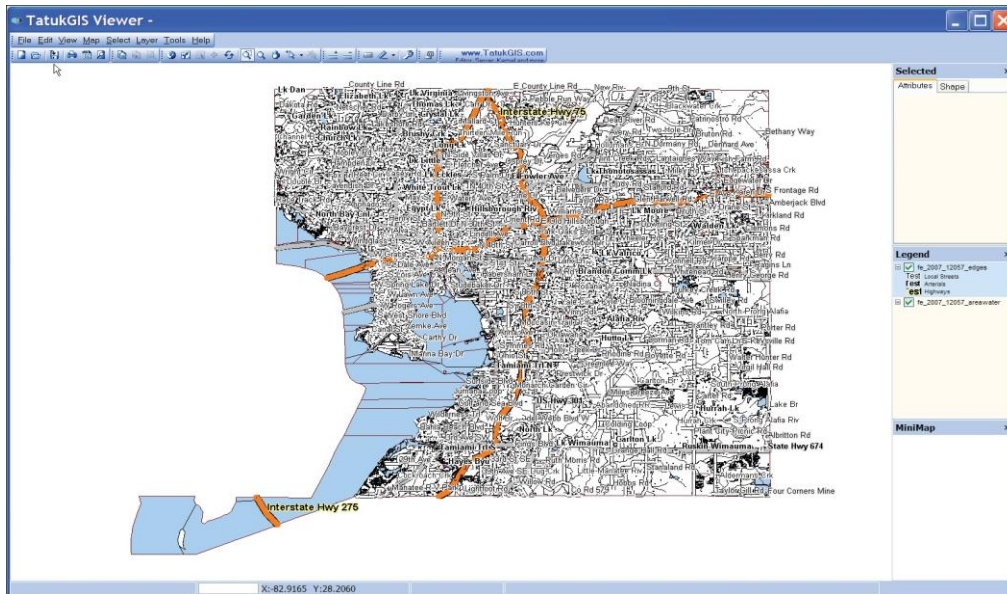
Each shapefile is loaded as a separate layer to the map. Each layer will be added to the project and then the properties for that layer will be loaded from a prepared .ini file. The order you load the layers is important so follow the sequence shown.

- 1- Click on **Layer:Add** in the menu at the top of the screen.
- 2- Navigate to the **C:\Program Files\PC-Warrants\Maps\YourCountyName\** folder.
- 3- Select **x-areawater.shp** where **x** is the prefix of the files in your folder.
- 4- Click **Open**. This usually brings up lots of grey areas. These are all of the water areas in the county.
- 5- Click on **Layer:Load layer properties** in the menu.
- 6- Navigate to the **Maps** folder and select **TigerAreaWater.ini** from the list. The areas turn a light blue.
- 7- Click on **Layer:Add** in the menu at the top of the screen.
- 8- Navigate to the **C:\Program Files\PC-Warrants\Maps\** folder.
- 9- Select **x-roads.shp** where **x** is the prefix of the files in your folder.
- 10- Click **Open**. This brings up lots of thin, black lines.
- 11- **Click on the new layer name (x-edges) in the Legend box on the right side.**
- 12- Click on **Layer:Load layer properties** in the menu
- 13- Go to the **Maps** folder and select **TigerRoads.ini**. The lines look more like roads.

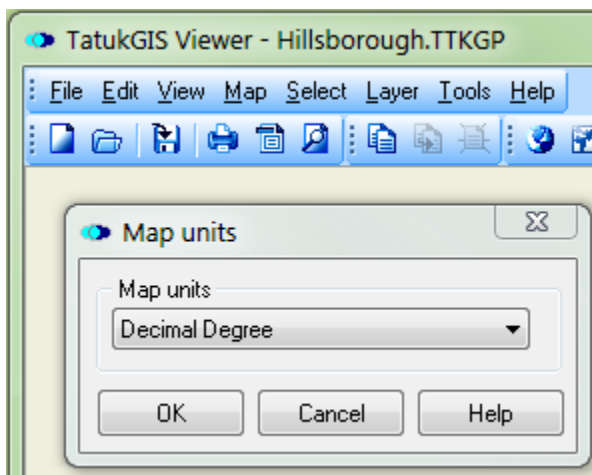
**Note: Step 11 is highlighted because it is the step that is most often missed. You have to select the layer you want to edit before you load an .ini file.**

You can repeat this process with additional counties if you do studies in more than one county. Your map can contain as many counties as you need. Download the shapefiles for each county to one folder as explained on page 9. and repeat steps 1-8 from page 13 for each set of files.

You now have the map looking like a decent map, although it may look a cluttered. You will take care of that next



## Load Map Units



The next step is to set the map units so that the software understands how distances are calculated in the layers that are used in the map.

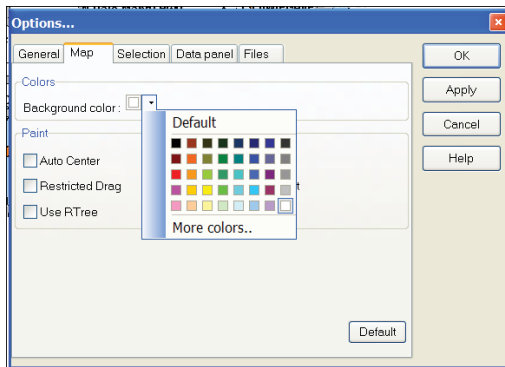
Click on **Map** in the menu at the top of the screen. Click on **Map Units** from the drop down box.

Click on the down arrow and select **Decimal Degree** from the long list of options, then click **OK**.

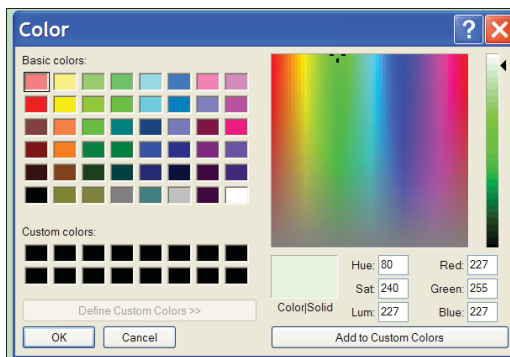
The screen greatly simplified so that all you can see are the major highways on the map. The local roads are only shown when you are zoomed in fairly close. This cuts down on the clutter.

## Pick Background Color

The maps look a little better if the background color isn't white; you get a little contrast with the roads and text. It is easy to set the background color.



Click on **Tools** on the menu at the top of the screen. Click on **Options** from the drop down list. Click on the **Map** tab. Click on the down arrow in the **Colors** section. This brings up a screen similar to this one. You can pick one of the colors shown but most people like a very soft background color. One option is a very light green background. To set this: Click on the Light Green square on the bottom row so it is highlight- ed, then click on the **More Colors** button. Click on the **Define Custom Colors** button.



You will see a screen like this. On the far right is a graduated color scale that starts at white at the top and progresses down to black at the bottom. The little triangle shows the currently selected color. Click on the arrow and drag it up one or two spots so that the arrow is just below the white section.

Click on the **Add to Custom Colors** button then click on **Ok**. This brings you back to the previous screen.

Click on the **Apply** button and the background of the map should change to the new color.

Feel free to experiment to get the color you like. Some people like a light yellow or a light grey. It is up to you.

## Save Project File

The next step is to save this project so that PC-Warrants can use it.

- 1- Click on **File:Save Project As...** in the menu at the top of the screen.
- 2- **Navigate back to the folder with your shapefiles (very important).**
- 3- Enter **PCT** in the **File Name** text box, then click **Save**.

This creates a PCT.ttkgp project file in the Maps\YourCountyName folder. PC-Warrants looks in this folder for the shape files and for the project file that defines the symbology of the layers in the shapefiles.

When you are done you should have the shape files in your folder now and only the .ini files in the Maps folder. Congratulations you have succesfully created maps of your area and formatted them to use in PC-Warrants.

## Misc Notes:

Many users like to create a separate folder for each county or collection of counties that are part of the same map project. This is particularly true for consultants who might have clients in many different parts of one or more states. In this case first create a folder with the name of the county or counties under the Maps folder. Unzip the map files you download from the Internet to this new folder and then follow the directions above. Make sure you save the map project file PCT.ttkgp in the same folder as the shapefiles. Don't save the map project file in another folder and then move it to the new folder. This doesn't work.

The procedures shown here are only one way to get to the same result. If you know a better way, please let us know so we can share the information.

The way the map looks is completely adjustable. If you would like to learn how TatukGIS Viewer works and come up with different symbology for the features, then please feel free to experiment. If you come up with some looks you like, let us know and we will share them with others on the [www.PC-Warrants.com](http://www.PC-Warrants.com) website.

If you do make changes then make sure you save both the .ini for the layer you edit, and the project file. Just make sure you save your project as PCT.ttkgp so that PC-Warrants can use it.



# How To Learn About PC-Warrants 2: Web Tutorials

Now that you have installed the software and map project files, what next? In the 'old days' there would be another hundred pages to this manual that would explain how to run the software using text and pictures. But that isn't the best way to learn. The best way is to have someone who knows the software show you how the software works. That is what happens on the web tutorials.

Go to [www.pc-warrants.com](http://www.pc-warrants.com). Click on the **Tutorials** link on the left side of the screen. This will bring up the list of available tutorials as shown in the screen shot below. This list will be expanded as new tutorials are added.

**Tutorials**

Here are a series of tutorials to show you different features of PC-Warrants. Click on the **Play** button to load the tutorial, then click on the arrow button in the middle of the window to watch. The controls at the bottom of the tutorial window control the playback. **If the window is a little small on your screen try clicking the Full Screen icon next to the Volume control.**

**Introduction to PC-Warrants 2** Play  
This tutorial shows you an overview of the new PC-Warrants 2 software with an emphasis on what is new compared to version 1.

**Multiway Stop Studies in PC-Warrants 2** Play  
This quick tutorial shows you an overview of how Multiway Stop Warrants are supported in PC-Warrants 2 (*very similar to version 1*)

**Introduction to Study Scores** Play  
This tutorial shows the new feature of 'Scores' where you can give each study a score to use to compare different studies that meet different warrants.

**Introduction to Mapping** Play  
This tutorial shows the new feature of Mapping where you can display a map of your county (or counties) to show each study with an icon that shows whether the warrant is met (green) or not (red) as well as the Score.

**How to Create a Map File Project** Play  
This tutorial shows you how to download maps (for free) from the US Census Bureau and then use the (free) TatumGIS Viewer program to create a map project file from the files you download so you can map your studies.