

An Introduction to Pathfinder 2.8

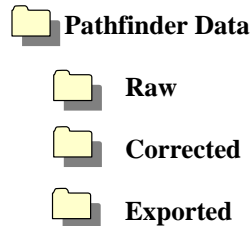
(Student)

GPS units can only hold up to one MB of data. For most purposes this is plenty of room, but it's best to download as often as possible to ensure that you have plenty of room for what you need. Usually this means downloading every day.

To download, you must first make sure that the cradle has been plugged into the computer before the computer is turned on.

Next, it's a good idea to have some type of file system set up so that it's easy to find exactly where you want to download files to and retrieve files from. This file system can be set up however you want, but a logical, easy to follow system is always best.

This example might work for you:

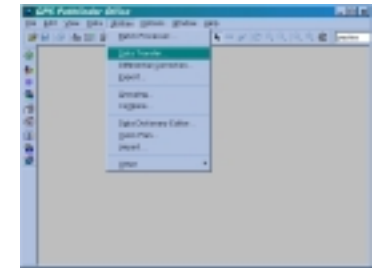


As you go on to building maps with your data (with GIS programs such as ArcView) a second file system will need to be created. This file system you've just created is to help us manage new, unfixed data only.

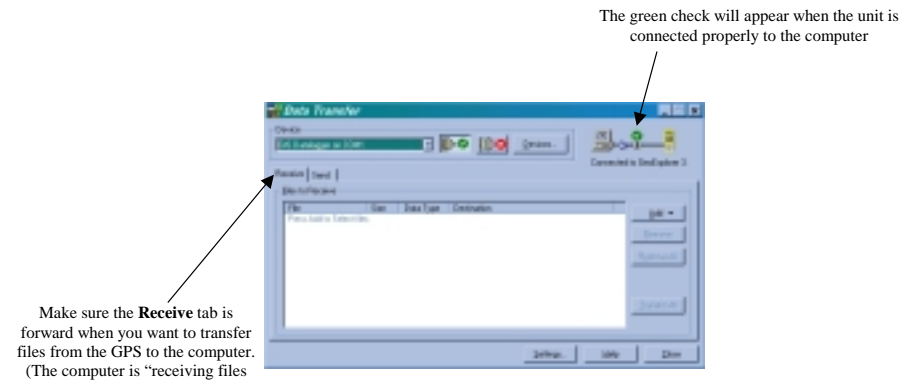
Downloading

To download, first set the unit on the cradle. If it was placed correctly, you'll hear a 'click' and the Trimble introduction will appear on the screen.

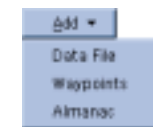
Open Pathfinder 2.8 and select the option named **Utilities**, and then **Data Transfer**.

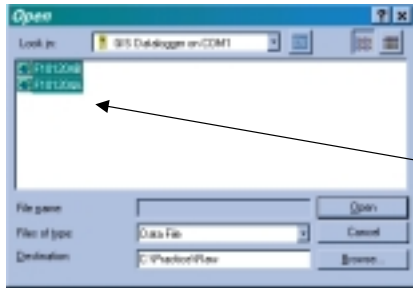


A Data Transfer box will then appear.



When you click on **Add**, three options come up. Select **Data File**.



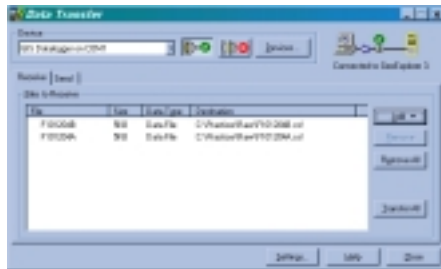


All of the files currently stored on your GPS will appear.

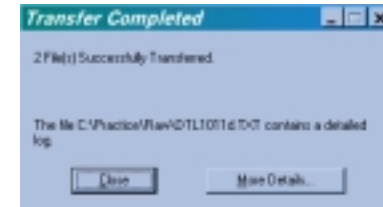
VERY IMPORTANT!!! We now need to tell the computer where we want it to store our files once it downloads them. Look at the **Destination** drive and make sure it is correct. If it is not, click **Browse** and select the correct folders. (The correct destination will vary depending on how you set up your file system.) If you followed the example, your selected destination should read: **C:\Pathfinder Data\Raw**


When your destination is correct, highlight all of the files you want to transfer and click **Open**.

The Data Transfer box now shows all of the files you're about to transfer. If they are correct, select **Transfer All**.

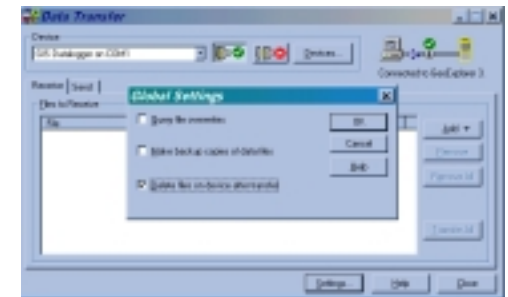


If the files transferred correctly, a dialogue box will pop up. Just **Close** out of it.



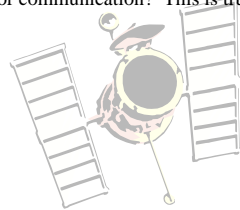
 **Note:** Once downloading is complete you'll need to delete your downloaded files off the GPS by hand unless you chose the option that has the computer delete them automatically for you.

This option is under the **Settings** button of the Data Transfer box.



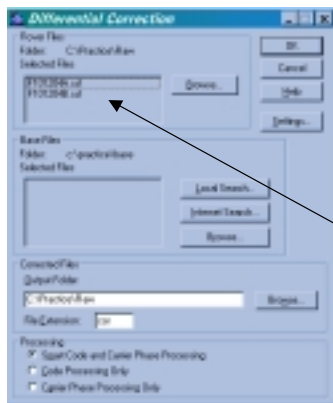
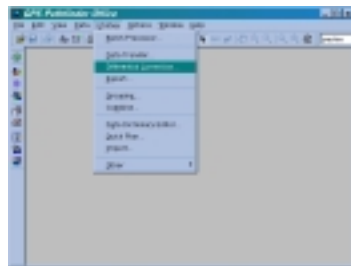
Correcting

The data you've just downloaded is called "Raw" because it's fresh from the GPS, meaning that it could have errors on it. Remember how you learned that your data is the most correct when you have four or more satellites locked on for communication? This is true, but it turns out that there are a few limits.



See, regardless of how many satellites you were locked on with, they're still floating up there in space so their guess for our location is just approximate. There's a way, though, to take the info from the satellites and compare it with a place on land near you for which you the exact coordinates. These places are called base stations. When we compare these two sources like that (the satellites and the base station) they work to "check" each other, so that the resulting information we get is even more correct than before. This is called differential correction.

To do this on Pathfinder, select **Utilities** and then **Differential Correction**.



The Differential Correction screen will pop up. Select the files you want to correct. If you just barely downloaded them they will probably automatically appear in the **Selected Files** box. If not, hit **Browse** and locate the files you want.

Next, select **Internet Search**.



The scroll down box contains many base stations to choose from. In this area we usually stick with Missoula, Montana because it is the closest station that is very reliable.



Choose Missoula (or whichever base station you wish) and click **OK**.

The computer will automatically begin transferring files from the base station you selected to the computer's memory. When completed, a confirming box appears.

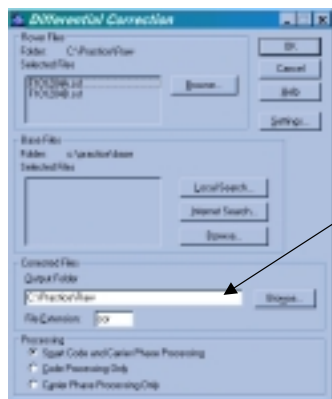


Click **OK** only if the percent coverage is 100. Slightly less than 100% is acceptable, but 100 is definitely preferred. If the percent shown is lower than this, click **Cancel**, select a different base station, and try again until you find a station that will give you 100%.

After obtaining 100% coverage, and selecting **OK** a new box will appear for which you need to hit **OK** again.



Now you should be back at the Differential Correction box. Once again, it is **VERY IMPORTANT** that you pay attention to the Destination Drive (**Output Folder**). If the destination is not what you want, hit **Browse** and select the correct combination of folders. When finished, hit **OK**.



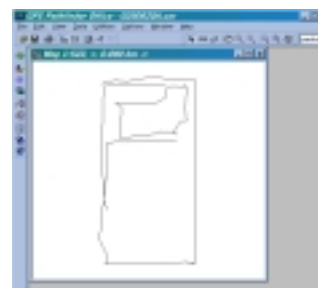
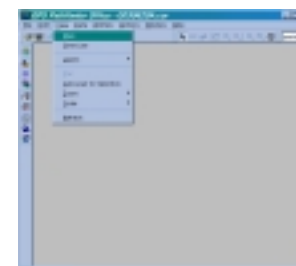
When Differential Correction is complete a dialogue box will pop up. Select **Close**.



Viewing The Map

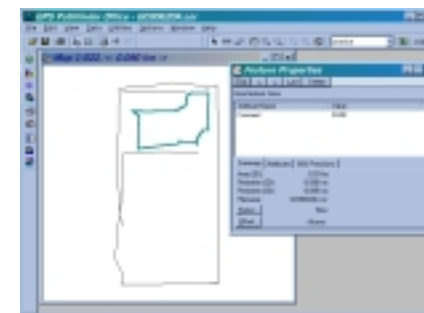
Now you can either view your data on a simple map here in Pathfinder, or you can export your files to a GIS program like ArcView.

To view it here, select **View** and then **Map**.



Pathfinder will automatically show a map for the last files dealt with. If they are not yours, or you would like to view previous files, you must close out of the visible map and then open the appropriate files from under the **File** menu.

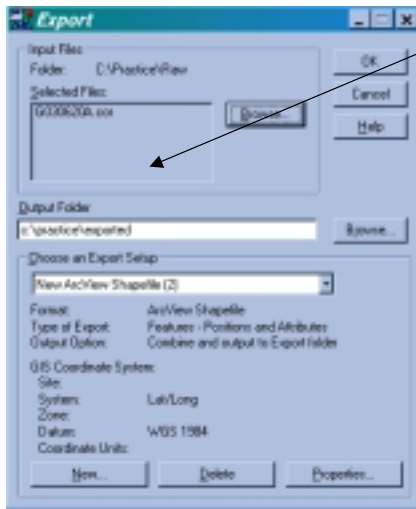
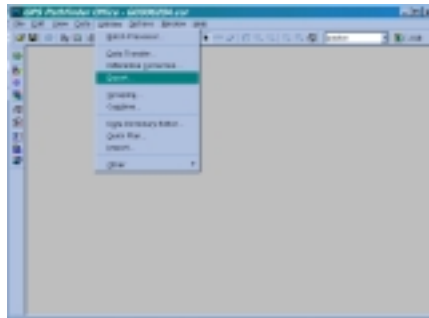
Once the map comes up, you can click on each feature and a list of the attributes comes up. If you only used the Generic data dictionary to collect your data, the only attribute to come up would be **Comment** (where you typed in the feature name).



Exporting

To be able to use your data files in a program like ArcView, you must convert the files into a format that Arcview can read. This is why we export.

To do this, click **Utilities** and then **Export**.

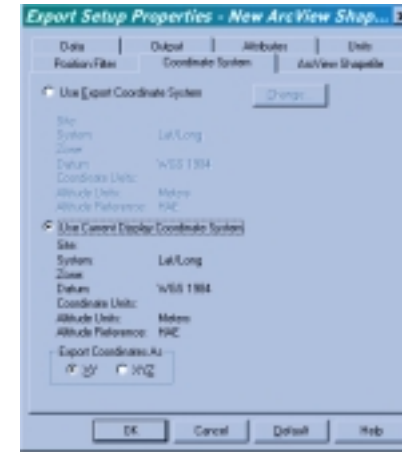


The Export box will pop up. Select the files you want to export from the **Selected Files** box. Once again, if the files are not correct, choose the ones you want after hitting browse.

Yet again it is **VERY IMPORTANT** that you select the correct Destination Drive (**Output Folder**).

Lastly, under **Choose an Export Setup**, select **New ArcView Shapefile**.

There are many features under the Properties option of the Export box that help to set the format the files are being exported in. The settings you choose depend on where the data is going and what specifications someone gave you. Probably the most important property is the Coordinate System which controls the projection your data will be in.



Maps come in all different projections, and if you want your data to overlay on an existing map, it has to be in the same projection as that map. Most map features or themes used in ArcView are in WGS 1984, so select that for your projection. Click **OK**, and your files will be exported.



Note: You can export as many files as you want to at one time, but only ones that have the exact same data dictionary.

Once your files are exported, they can be opened and renamed in ArcView, and organized into the second file system discussed further in the **ArcView Tutorial**.



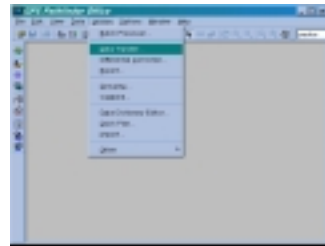
Note: It is very important that each file you download, correct, an export all have their own name. If they don't, the second file to be downloaded or exported with the same name will overwrite the first one, and you'll lose a lot of data.

Other uses for Pathfinder

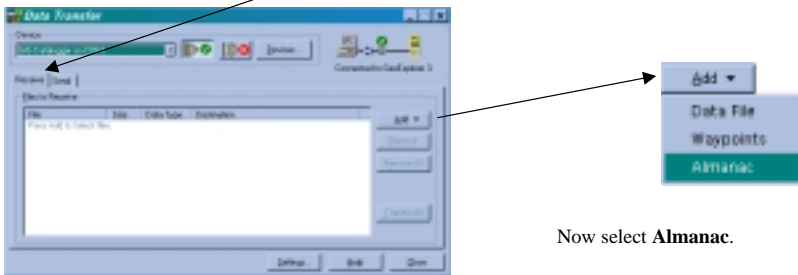
PDOP Prediction

Do you remember learning in an earlier section that there are certain times of day that will be worse than others, as far as PDOP and the number of satellites above you? Well these times can be predicted easily. We do this by using an "almanac."

First, we're going to get the most current almanac available, so we'll take one from the GPS. This is done by first connecting with the GPS unit via a cradle. Next, select **Utilities** and **Data Transfer**.

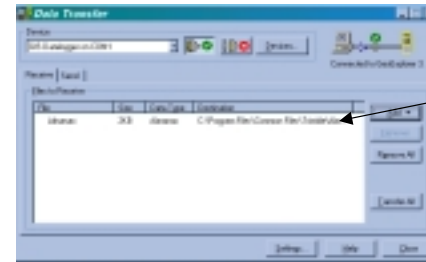
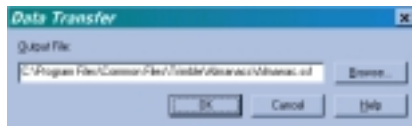


Once the Data transfer box appears make sure the **Receive** tab is the one selected and then click **Add**.



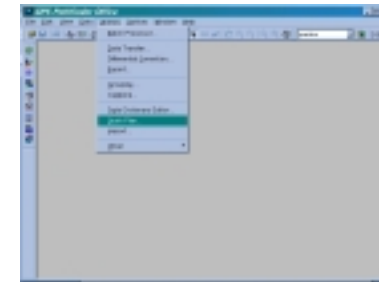
Now select **Almanac**.

You must now tell the computer where you want it to save the Almanac. (Destination Drive)

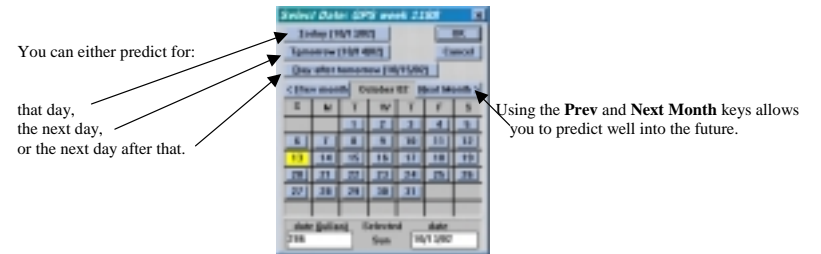


If the destination is correct, select **Transfer All**.

After the Almanac transfers close out of the Data Transfer box and select **Utilities**, then **Quick Plan**.



In the first box to appear, select the date for which you wish to predict.



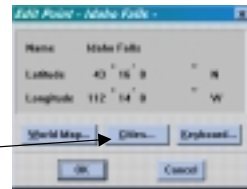
You can either predict for:

that day,
the next day,
or the next day after that.

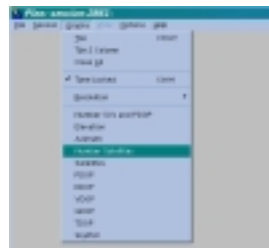
Using the **Prev** and **Next Month** keys allows you to predict well into the future.

Next, select **OK** when the date is correct. The next box to pop up is to locate the city nearest the area where you will be using the GPS.

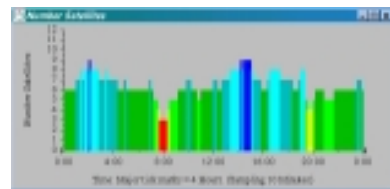
Use the **Cities** key, for a complete list of available cities.



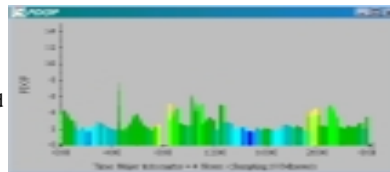
Select **OK**. You now have six more options at the top of your screen. Select **Graphs**, and then **Number Satellites**.



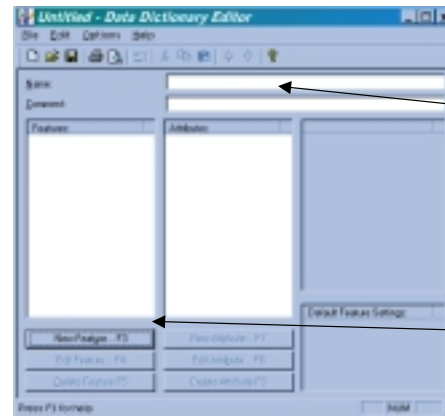
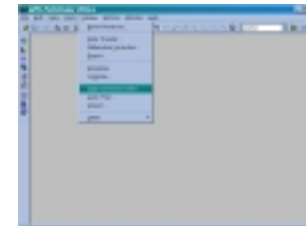
This graph will pop up. Notice that between 7 and 9 A.M. the number of satellites is the lowest. If at all possible, avoid using the GPS during this time.



Select **Graphs** again, and then **PDOP**. This next graph will also pop up. Notice that 4:30 A.M. has the highest **PDOP**. That would be the worst time to GPS. It's good to take both graphs into consideration when deciding what times are good for mapping.



To make a data dictionary you must use the **Data Dictionary Editor** beneath the **Utilities** option.

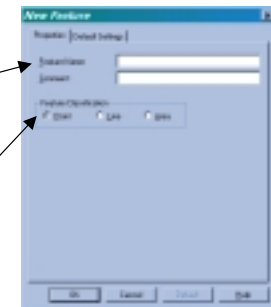


It's good to start off with a name for your new dictionary.

Next, add a **New Feature**.

Give the new feature a name,

and choose whether you'd like it to be a point, line or area.



Click **OK**. Now it's time to give your feature some attributes. Remember from the GPS tutorial that attributes are the questions the GPS asks you about the feature (point, line or area) which help you collect very specific information.

Some examples of useful attributes for a weed dictionary are:

Date (Date)

Site ID (Text)

Weed Species (Menu)

Size of Infest (Numeric)

Units of Infest (Menu)



The date attribute is pretty straight forward, but how do you know which attributes need a menu, which are numeric and which need a text? Here are some basic rules of thumb for you to follow:

Menu should be used when you are giving the GPS mapper a choice about an answer. If you are collecting information on weeds, and you want to know how the patch of weeds being mapped was treated, you type a list of the treatments for the mapper to choose from. These might include Chemical, Biological, Domestic, or None. A menu is basically useful only when you know you have a limited number of choices to choose from.



Give each attribute a name (such as Treatment). After hitting **ENTER** a menu box will pop up.

Give the first **Attribute Value** a name such as Chemical. The **Code Values** are where you place abbreviations for your attribute values (like C for Chemical).

Hit **Add** when everything is satisfactory. Your first choice will move to the big box, and this small box will clear in preparation for your next addition.



Numeric is good to use when the data you are looking to collect for a specific question regards numbers only. This attribute is useful when the answer could be a huge variety of things (so you wouldn't want to use the menu attribute) but only includes numbers.



Name your attribute first off.

Next, set the number of decimal places you want your data collected to.

Lastly, set the maximum and minimum so that you won't get any outrageous figures back.

Text is useful when you want answers that you'd like the mapper to type in manually (such as the name of a place, or a comment on the surroundings). It wouldn't be feasible to create a menu here because the possibilities are pretty endless. Under the text option it also to combine words with numbers. This is useful in naming sites, which often involve a name and a number.

Give your attribute a name to begin with.

Next specify how many characters it can have.

All of these attributes have many other options such as having an answer required before it can be closed, or advancing automatically to the next number, or more. This has just been a brief introduction to the capabilities of the data dictionary editor.

