Preparing your Windows Mobile Version 5-based Trimble GeoExplorer 2005 Series GPS unit (GeoXT) for use

David Kimball, DCR GIS Specialist
david.kimball@state.ma.us
617-626-1447
June 2006, updated August 2006

Before using your GeoXT in the field, there are a number of steps you should take to make sure it is up-to-date and has all the correct software installed. Contact GIS staff if you have difficulty with any of the steps.

Charge the GPS unit

Before doing anything else, you should plug the GPS unit's cradle (the gray docking station) into a power outlet and set the GPS unit into the cradle to charge it for at least 8 hours. Do not attach the USB cable at this point, just the power cable. I recommend plugging the power cable into a powerstrip with surge protection for safety. Turn the GPS unit on by pressing the green power button briefly, slide the top of the unit into position at the top of the cradle, then press the bottom of the unit down until it clicks. Now turn the GPS unit off by pressing the green power button briefly. *If you don't see a green power button (plus ten other buttons) on the bottom front of the GPS unit, you probably have a different (non-Windows Mobile Version 5 GeoExplorer 2005 Series) version of the GeoXT/GeoXM. There is another document that describes your version of the GPS unit.*

The GPS unit should come with a pack of Touch Screen Protectors, which are little plastic rectangles that you stick to the screen to protect the screen from getting scratched. I strongly recommend applying one to the screen before using the GPS unit. Remove one from its backing and carefully apply it to the screen, pressing it on with your thumb to remove any air pockets.

Microsoft ActiveSync

Download and install the latest version of Microsoft ActiveSync from the Microsoft website. As of this writing, it can be found by going to www.microsoft.com and clicking on Windows Mobile. There should be a download link on that page. You need version 4.0 or higher (as of this writing the current version is 4.1). Follow instructions to install the software (you may need to be logged on as Administrator or as a power user). You may have to restart your computer as part of this process.

Launch ActiveSync on the desktop computer and click File—Connection Settings. Make sure "Show status icon in taskbar", "Allow USB Connections", and "Open ActiveSync when my device connects" are all checked.

Desktop ArcPad 7

To install ArcPad 7 on the GPS unit you must first install it on your desktop (or laptop) computer. You will only have to do this once (per desktop or laptop) even if you are setting up multiple GPS units. Make sure the GPS unit is not attached to the computer. Insert the ArcPad 7 CD into your desktop computer's CD drive. Follow the installation wizard, choosing "Complete install with NADCON/HARN tables". Do a complete install.

Now go to the ESRI webpage and download any service packs or patches for ArcPad 7. As of this writing, these can be found by going to www.ESRI.com and then Support—Downloads—Patches and Service Packs—ArcPad and downloading any recommended patches or service packs for ArcPad 7. Follow the installation instructions, first making sure that the GPS unit is not attached to the computer.

Once it is installed, run ArcPad 7 once from the desktop link to make sure it works. You will be required to enter the installation code, which you should have received with your installation CD.

The GPS Unit

Before connecting the GPS unit (Trimble GeoXT or GeoXM) to your computer, you should do a few steps to prepare it.

Once the unit is fully charged, take it off the cradle. Turn the unit on by pressing the green power button briefly. A Windows desktop should appear with a Start button at the upper left.

First we should align the screen. Simultaneously press the Display button (round blue button with asterisk) and the Start button (leftmost gray button with Windows logo (four wavy white squares arranged like the Windows flag logo). This should bring up the screen alignment screen. Follow the instructions.

Next, tap Start—Settings, and then tap the System tab. Tap "Power". The Battery tab shows your remaining battery charge – Main battery is the internal battery, while Backup battery does not exist and will always say 100%. Go to the Advanced tab. Make sure both checkboxes are checked and that "On battery power" is set to 5 minutes and "On external power" is set to 30 minutes. This way the screen will turn off while the battery is charging and you won't burn an image into the screen. Go to the Wireless tab. Tap "Wireless signals off (Flight mode). This will stop the unit from trying to connect to wireless and Bluetooth networks. Tap OK.

Still in Start—Settings and on the System tab, tap "Clock and Alarms". Set the "Home" time to the correct time zone (GMT-5 Eastern US), time, and date. Tap OK. Close the Settings window by tapping the "X" in the upper right hand corner.

Optional: Still in Start—Settings and on the System tab, tap "About", then tap the Device ID tab. Change the device name to something unique that describes the GPS unit, for instance "DCR_2006_XT3".

On the desktop, tap the line near the top that says "Tap here to set owner information". Type in the Name, Company, Address, Telephone, and E-mail of the GPS unit's owner or user. Tap OK. Now your name and telephone should appear on the desktop. This is useful in case the GPS unit gets lost.

I also recommend putting the unit in "flight mode" so it doesn't try to connect to wireless signals. You can do this by tapping the little chess piece icon that appears at the top of the screen between the Start button and the speaker icon. Then tap Turn On Flight Mode.

This step may not be necessary – only do it if you can't connect later: *Now change the unit's ActiveSync settings to enable it to connect to the desktop computer. Tap Start—Programs, then tap ActiveSync. Tap the word "Menu" at the bottom of the screen and choose "Connections…". Under "When cradled", check the "Synchronize all PCs using this connection:" checkbox and choose "USB" from the menu. This seems to enable the unit to connect properly…*

Connecting to the desktop

At this point you should remove the GPS unit from the cradle and connect the cradle to the desktop computer with the USB cable. Now place the GPS unit into the cradle. Wait a minute to see if ActiveSync launches automatically on the desktop computer. If not, remove the GPS unit from the cradle, wait a minute or so, and try again. If it still doesn't, try rebooting the desktop and soft-resetting the GPS unit (hold down the power button for 5 seconds) and try again. If it still doesn't work, call GIS staff for help.

When ActiveSync launches, you should see the Synchronization Setup Wizard. Click Cancel – this will allow you to install programs and move files back and forth without having to set up a sync relationship.

Updating the OS

The GPS units we received came with Trimble's version 5.1.12 of the Windows Mobile operating system. We needed to update to version 5.1.13, which is available on this webpage [http://www.trimble.com/geoxt_ts.asp?Nav=Collection-38629]. If there is a newer version there (posted since this writing), upgrade to that as well. Tap Start, then Settings, then tap the System tab, then tap System Information. This will show you the OS Revision. If you have a version prior to 5.1.12, you'll need to update to 5.1.12 before upgrading to 5.1.13.

Basically, you need to download the upgrade file (or files), copy it to the GPS unit (the Temp folder is a good place), and then run File Explorer, browse to the file, and tap on it. Then just follow instructions. After installation, you may wish to check to make sure all

your settings are still OK (the units seem to take themselves out of Flight Mode when the OS is upgraded, for instance).

Installing ArcPad on the GPS unit

Once you have the GPS unit connected with ActiveSync, you can install software on it from the desktop computer. On the desktop, click Start—Programs—ArcGIS—ArcPad 7—Install ArcPad 7.0 Application on Windows Mobile. Follow instructions to install. Check the GPS unit's screen to see if you need to perform any additional steps. You should not need to install any of the other things listed (HARN or NADCON tables, Sample datasets, or the VBScript library).

Installing GPScorrect on the GPS unit

To install GPScorrect 2.x, which is a piece of software that runs along with ArcPad to enable you to differentially correct your GPS data, you need to undergo Trimble's grueling software key code registration process. I believe you can do this one of two ways: by going to their registration website [http://www.trimble.com/register/], logging in, and typing in your Proof Of Purchase Number to get an Installation Number; or by entering this information during the installation process. Call GIS staff if you have any trouble obtaining this code number.

To install GPScorrect, insert the GPScorrect CD into your desktop computer's CD drive. Click "Install" and then "Install on Pocket PC or CE device". Follow instructions to install the software. As part of this process, make sure to install updates when asked. This will automatically download and install updates from the Trimble website. It is important to install all updates (except non-English language updates).

Load shapefiles onto GPS unit

At this point you can load edit and background data onto the GPS unit. GIS staff will supply you with edit data (i.e. Road/Trail shapefiles, etc) that are empty shapefiles which you will edit by adding GPS data. You can also add background shapefiles and images that you can use to help navigate. Each of these needs to have a .prj file associated with it to let ArcPad know what projection they are in. Since all of our data is in MA State Plane NAD83 meters, you can just copy the .prj file from any shapefile and rename it to match your new shapefile or image. As long as the first shapefile you add to a project has this .prj file, ArcPad will know what projection to use and your data will show up properly relative to your current GPS position.

To load data, you simply copy and paste it onto the GPS unit using Windows Explorer. Browse to your data in Windows Explorer and highlight the files or folder you want, then Copy them (right-click on them and choose Copy). When moving shapefiles, it is essential to keep all the files that make up a shapefile together. These will be files with the same name before the dot (i.e. "DCR_Trail_Road") but different names after the dot.

At a minimum these will include .shp, .shx, .dbf, and .prj. There may be more depending on the data. For example, you might have:

```
DCR_trail_road_point.apl
DCR_trail_road_point.dbf
DCR_trail_road_point.prj
DCR_trail_road_point.shp
DCR_trail_road_point.shx
DCR_trail_road_point.vbs
```

These files must all be kept together in the same folder. In some cases there will be additional files or entire folders full of files that must be kept together.

On the ActiveSync window there is an Explore button; click it to open a window showing the contents of the GPS unit. Double-click "My Windows Mobile-based Device" and then double-click "My Documents". This is where we store edit and background data. You may wish to make a subfolder with the name of your project, i.e. "Trails2006" or "Mt_Greylock". Paste the files into this folder (right-click and choose Paste).

For more information about managing data, see the document "GeoXT data downloading (Windows Mobile 5)".

Run ArcPad

Disconnect the GPS unit from the cradle. Tap Start and if ArcPad 7 is on the dropdown, tap it. If not, tap Programs and then tap ArcPad 7. You also may be able to start ArcPad by tapping the word "GPS" at the bottom of the desktop. Wait several seconds for ArcPad to launch. The first time you run it you will need to type in the installation code using the screen keyboard.

The first time you run ArcPad you should enter the settings as listed in the "GeoXT Settings (Windows Mobile 5)" document.

Test the GPS unit outside to make sure it works correctly. Instructions on using the GPS unit are in the "Using the GeoXT (Windows Mobile 5)" document.

Install GPS Pathfinder Office

To differentially correct your data, you will need to install either GPS Pathfinder Office (PFO) or Trimble's GPS Analyst extension for ArcGIS onto your desktop computer. If installing PFO, you need a recent version that includes ShapeCorrect. Version 2.90 worked with ArcPad 6/GPScorrect 1, but you needed to download ShapeCorrect separately. Version 3.0 or 3.1 may be needed for use with ArcPad 7/GPScorrect 2.