

## Installing and Using ArcPad on MobileMapper CE

8 June 2007

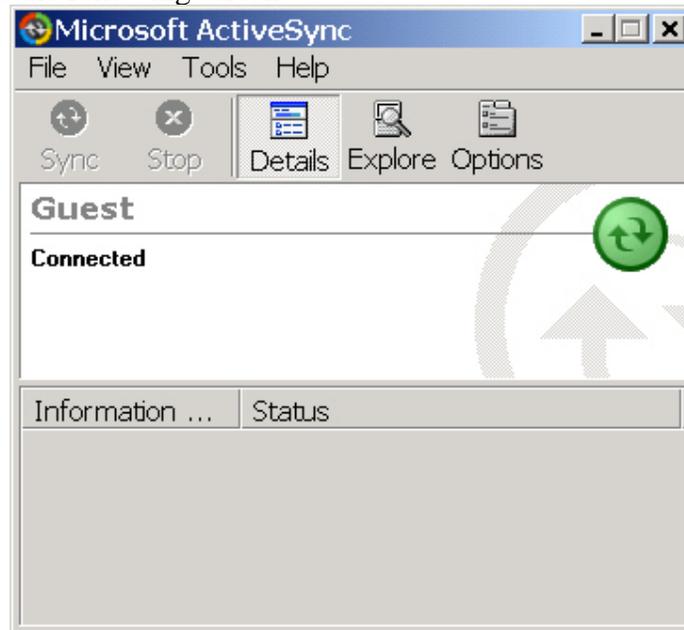
### A. Install ArcPad on both your PC and MMCE

1. After you install ArcPad on your PC, the installation program will proceed install it on your MMCE. To do this, you will need to have Microsoft ActiveSync® installed on your PC. You may download the latest version of ActiveSync (4.5) for free from <http://www.microsoft.com/downloads/details.aspx?FamilyID=9e641c34-6f7f-404d-a04b-dc09f8141141&DisplayLang=en>.
2. Attach the I/O module to the back of the MMCE receiver.
3. Insert the small connector on the USB cable to the I/O module and the large connector to your PC.
4. Microsoft ActiveSync will automatically recognize your receiver and will ask if you wish to set up a partnership between your PC and MMCE.



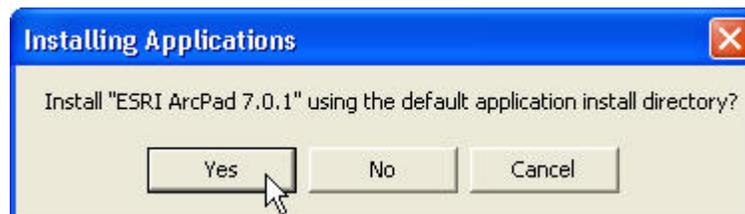
Click “No” (do not establish a partnership) and click **Next** to set up a Guest relationship between your PC and the MMCE.

You will see the following screen:



ActiveSync is now running and your PC and MMCE are in communication. This screen will be minimized when you activate any other application.

5. Install the new version of ArcPad on your PC by going to <http://www.esri.com/software/arcgis/arcpad/download.html> and following the instructions.
6. When ArcPad finishes installing on your PC, the installation wizard will ask you if you wish to install ArcPad into a default directory on the MMCE (see below). **Click No.** All applications must be installed into MMCE's MyDevice directory.



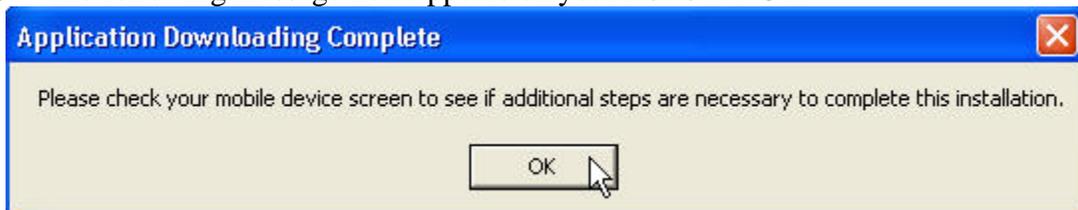
A note on installing ArcPad into MobileMapper CE's **MyDevice** directory  
 PDAs typically store their software programs within **Main Memory**. Main memory on most mobile devices like PDAs is volatile - which allows programs to launch rapidly. To prevent the programs being erased upon power down, PDAs never really turn off. This is why you must reinstall all PDA programs when their internal batteries fail. Fortunately, it is easy to continuously power the volatile main memory because PDAs are typically returned to a synchronization/recharge cradle daily.

MobileMapper CE, however, is designed so you can take it to the field for weeks at a time, and store it for months between jobs. (We recommend that you recharge the batteries every three months to keep them fresh.) To permit this mode of usage, it is important to shut the power off completely to conserve power. To keep ArcPad from being erased when the MobileMapper CE is shut down, you should install it into the **MyDevice** directory. This directory resides on an internal non-volatile NAND flash card and so is never erased, except deliberately by the user.

- The installation wizard will now ask you to select a destination directory (called “Destination Media”) in which to install ArcPad on the MMCE. The default is "Main Memory," but **do not install any application into Main Memory**. Instead, click the down arrow next to “Main Memory” for more options and select "MyDevice" as shown on the screen below.



- After highlighting **MyDevice** on the Select Destination Media window, click **OK**.
- The following message now appears on your PC. Click **OK**.



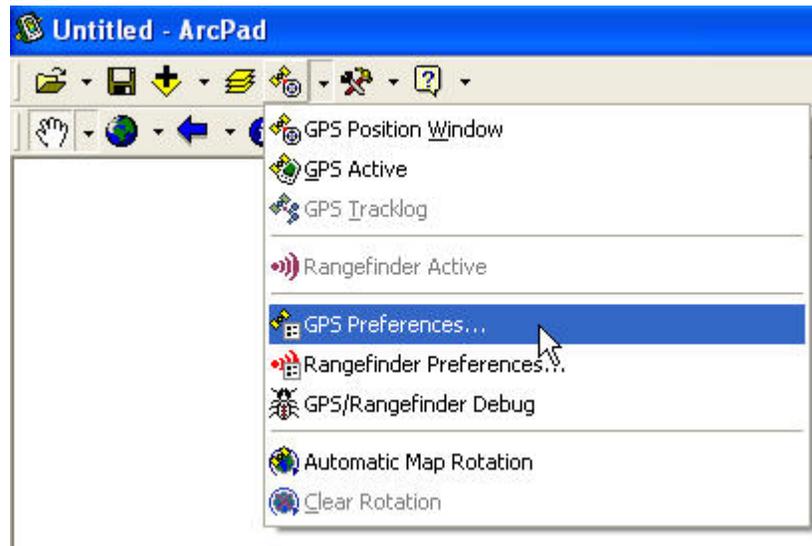
- MMCE will display an application installation screen indicating that ESRI ArcPad 7.0.1 will be installed in the **/MyDevice/Program Files/ESRI ArcPad 7.0.1/** folder. You have the option to change the name of the application using the displayed Input Panel, but we recommend you ignore the Input Panel and accept the default name (“Install Here”) and location by tapping **OK** at the top right of the screen.
- When you tap **OK**, a status screen is displayed on top of the MMCE Desktop saying that MMCE is installing ArcPad. When ArcPad finishes installing, the status screen disappears and the ArcPad icon appears on the Desktop.
- Double-tap the ArcPad icon and using the (automatically displayed) Input Panel to type in your ArcPad registration number that came with your copy of ArcPad.

- When done, tap the keyboard icon on the bottom task bar and select “Hide Input Panel.” Then tap **ok** is the bottom left of the ArcPad Registration screen.
13. Note: if you previously used ArcPad 6 on the MobileMapper CE, the old version’s registration number will not work with the new version. If you did not receive a registration number with ArcPad, please contact your dealer, Magellan Professional Sales or ESRI. You may run ArcPad in demo mode without entering a registration number by tapping the **X** at the top right of the screen. ArcPad will run for 20 minutes in demo mode.
  14. Tap **OK** at the lower left of the ArcPad screen.
  15. Tap the down arrow next to the **File** icon at the upper left of the ArcPad screen and exit ArcPad.
  16. **OPTIONAL** If you purchased GPSDifferential for ArcPad, there is a tech note for installing and using it at [ftp.magellangps.com](ftp://magellangps.com) in the /Mobile Mapping/MMCE/Application Notes/ folder.
  17. **OPTIONAL** To install the ESRI HARN (or NADCON) tables on MMCE, on your PC click **Start > All Programs > ArcGIS > ArcPad 7 > Install ArcPad 7.0.1 HARN (or NADCON) tables on Windows Mobile**.
  18. **OPTIONAL** If you wish to install sample data on MMCE, on your PC click **Start > All Programs > ArcGIS > ArcPad 7 > Install ArcPad 7.0.1 [Elmore, Redlands, World] Sample data on Windows Mobile**.
  19. **Once ArcPad has been installed you must restart the MobileMapper CE.** First close all applications, including ArcPad. Then tap the **Start** button and select the **Suspend** option. With **Full Shut Down Mode** displayed, and tap the **OK** button on the bottom left. After a few seconds, MobileMapper CE will fully shut down. Press the red power button on the keypad to turn it back on.
  20. Tap **Start > Settings > Control Panel > System** and tap the **Memory** tab. The solid blue bar indicates how much memory is left out of the total available memory (RAM and flash, excluding the memory on the SD card). Because you should record your data to the SD card, you may dedicate more memory to running programs than to storing data on non-SD card memory. To do this, move the slider to the left. Programs such as ArcPad run best when two-thirds of the total memory is visible to the right of the slider. The longer you run some programs, the more memory is used up by the programs. So you should check ever few hours to see if two-thirds of the remaining memory remains to the right of the slider.

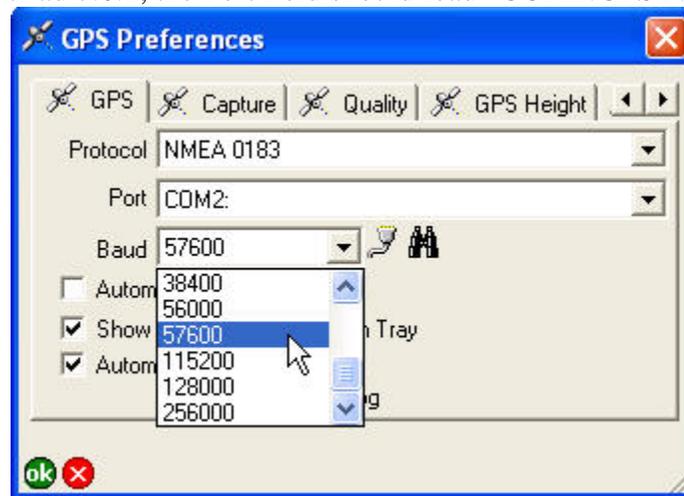
## B. Configuring ArcPad for GPS Communication

Once you have installed ArcPad and restarted your MobileMapper CE, you will need to configure ArcPad to receive GPS positions.

1. Run ArcPad and tap the down arrow to the right of the GPS icon and select **GPS Preferences....**

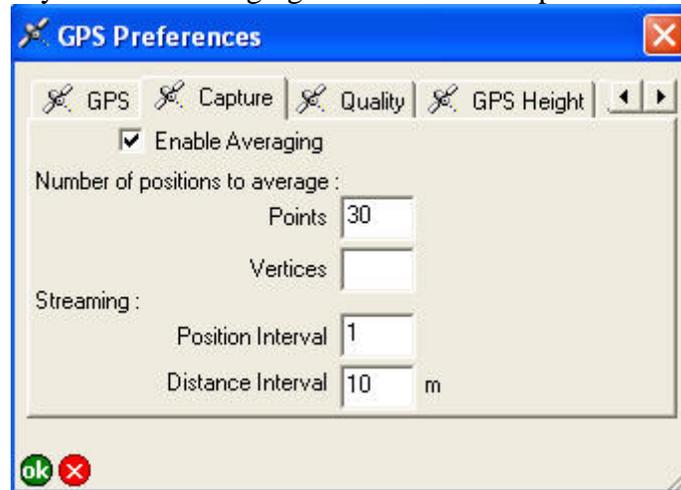


2. Tap the **GPS** tab and configure GPS communications as indicated below except that with ArcPad 7.0.1, the Port field should read “COM2:GPS NMEA.”

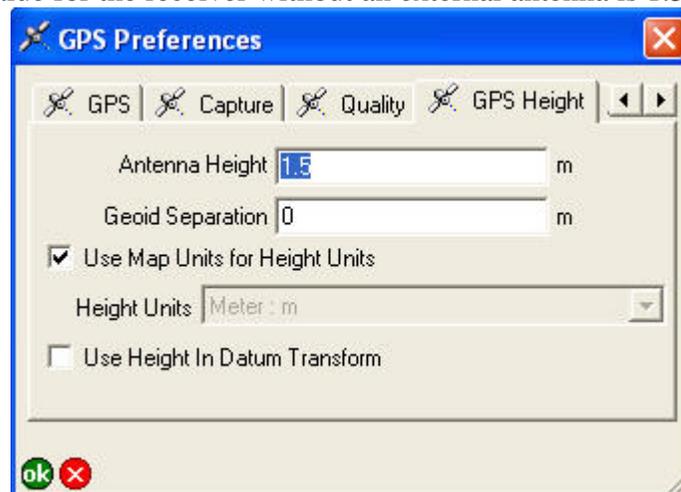


3. There is no need to set the parity bits or stop bits and ArcPad does not give you this option.

If you wish to average a number of GPS positions over a point feature, tap the Capture tab, check the Enable Averaging option and input the number of positions you wish to average at each point feature. MobileMapper CE outputs a GPS position every second. Averaging for 30 seconds improves accuracy.



4. To set the height of the MobileMapper CE receiver (or its optional external antenna) above the ground, tap the **GPS Height** tab and enter a value in the field. A typical value for the receiver without an external antenna is 1.5 meters.



5. When you are done, tap **OK** at the bottom left to accept all the GPS preferences.

### C. Installing additional ESRI fonts on MobileMapper CE

Installing ESRI desktop fonts on the MobileMapper CE will allow you to use many of the symbols you use with your ArcGIS desktop applications. To add the fonts you use with other ESRI desktop applications you have installed on your PC, use Windows Explore to navigate to your PC's font directory, e.g., C:/WINDOWS/Fonts (Windows XP) or C:/WINNT/Fonts (Windows NT/2000). Locate in this folder the corresponding ESRI true-type font file that you wish to use in ArcPad on your MobileMapper CE. For example, if you used the ESRI AMFM Gas font to define a

particular symbol, copy the file associated this font name (esri\_151.ttf) from your PC to the Windows/Fonts directory on MobileMapper CE. You may copy the font file either using an SD card and Windows Explore (first on the PC and then on MobileMapper CE) or by running ActiveSync.

After copying the font file(s), you should reboot the MobileMapper CE by tapping **Start > Suspend > Full Shut Down Mode > OK** and waiting for the unit to shut down. When the screen goes blank, press the Power button to restart the unit. Doing this will add the font files to MobileMapper CE's system registry for future use.

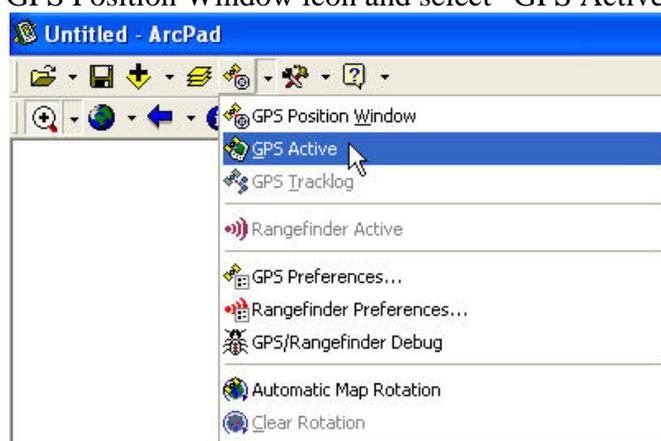
#### D. Selecting a Coordinate System for use in ArcPad

1. Using Windows Explore or the Folders option in ActiveSync, browse to the /Programs Files/ArcPad 7.0/Coordinate Systems/ folder on your PC.
2. Copy the coordinate system file you want to use (a \*.prj file) to the MMCE's SD card or to the /MyDevice/Program Files/ArcPad/System/ folder. You may alternatively copy to the MMCE an existing PRJ file you have used previously or one you created using MobileMapper Office.
3. On the MMCE, tap ArcPad's Layers icon (three yellow pages) on the top tool bar
4. On the screen labeled "Table of Contents" tap the "globe on folder" icon (the top icon on the column of icons on the far right)
5. On the "Choose Map Projection Definition File" screen browse to the PRJ file you wish to use, highlight it and tap OK at the top right of the screen. (The Windows operating system will automatically display the Input Panel. But because you will select a previously named file you may ignore it.)

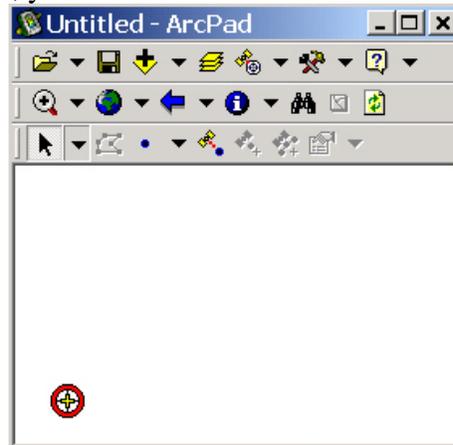
#### E. Turning on the GPS receiver using ArcPad

Once you have configured ArcPad for communication with the MobileMapper CE's GPS receiver, you are ready to log GPS positions.

1. Click on the GPS Position Window icon and select "GPS Active."



- If you have a GPS fix, you will see GPS cursor on the map display area.

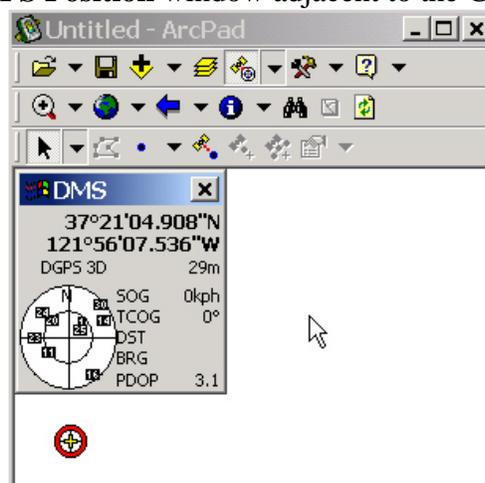


If you see a warning message saying the rate of incoming GPS data exceeds the capability of ArcPad to handle them, you may ignore it. Between turning on the MobileMapper CE and telling ArcPad to activate GPS, the receiver sends some data to a buffer. This buffer is emptied into ArcPad faster than it can handle it, but ArcPad only needs the last position and will ignore the older data.

- Now click the **GPS Position** window icon again and select **GPS Position Window**.



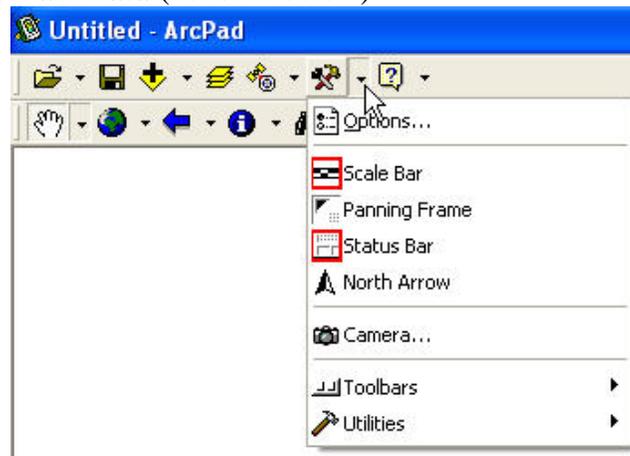
This displays the **GPS Position** window adjacent to the GPS cursor.



By default, positions are displayed in “DMS” (degrees, minutes, seconds), but by clicking on the position, you can select other coordinate systems. By clicking on the sky plot, you can display the Signal Chart and show which satellites are being tracked, their signal strength, etc. By clicking again on the Signal Chart, you can select a compass-style display.

You do not need to display the **GPS Position** window and people typically turn it off when logging data.

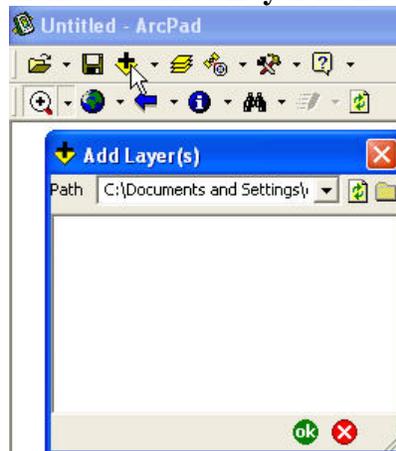
4. If you have the GPSDifferential for ArcPad option and wish to record GPS raw measurements for post-processed differential correction, click the arrow to the right of the **Tools** icon (see below) and tap the option at the bottom called **Start Logging GPS Raw Data** (not seen below).



## F. Uploading a background map

The following steps show you how to add a background map (in this case a Mr.Sid image) to your ArcPad map. *Note: All images must be georeferenced prior to upload!* Explaining how to do this is beyond the scope of this tech note. You can create a map in either the PC or the MobileMapper CE version of ArcPad.

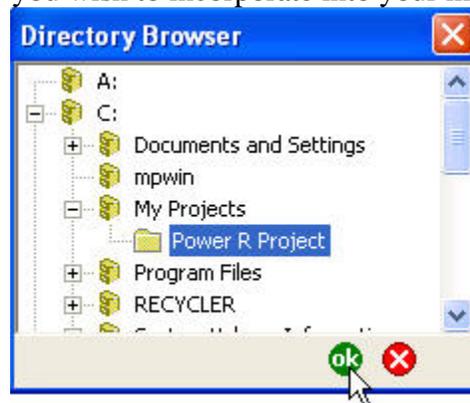
1. Click the down arrow next to the **Add Layer** icon



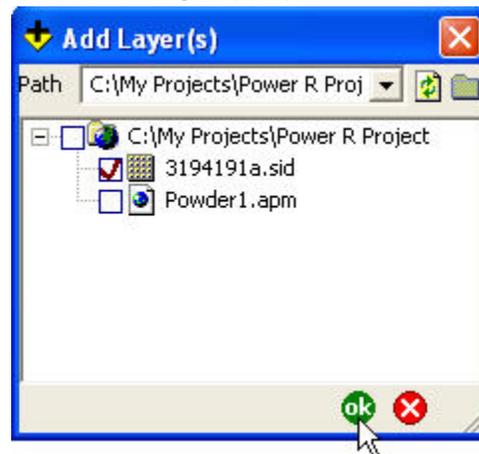
2. To browse to another folder on the computer, click the file icon on the **Add Layer** screen:



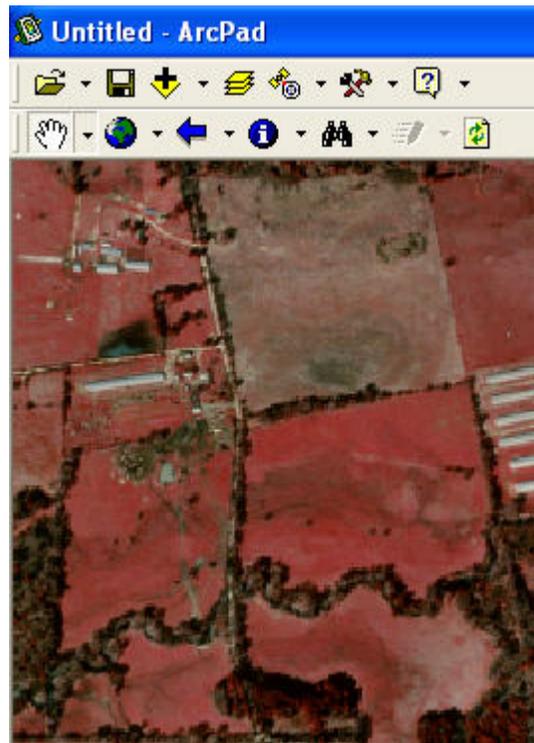
3. This brings up the **Directory Browser** screen. Tap the folder containing the background image you wish to incorporate into your map project.



4. Then return to the **Add Layer** screen and put a check mark next to the file you wish to display. Then click the **OK** button.



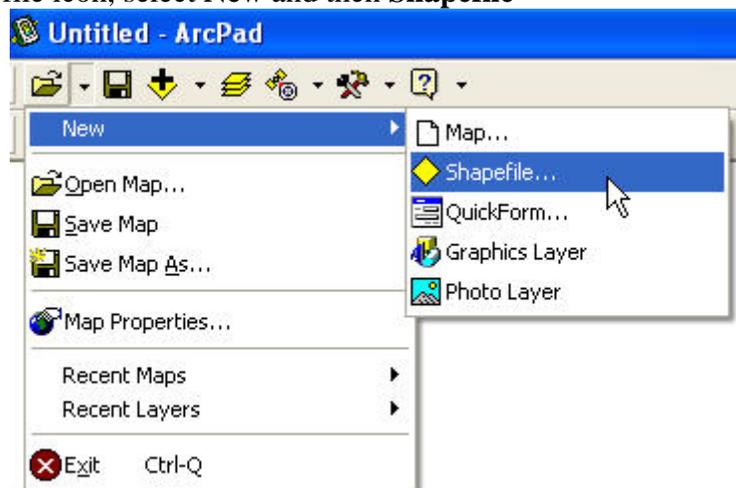
This will display the background image. The time required to display the map depends on its size.



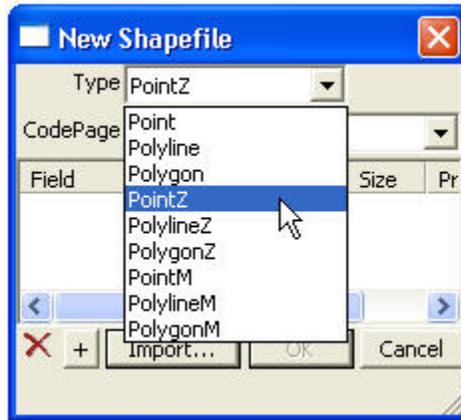
### G. Opening Additional Layers and Creating new Shapefiles

You can add additional layers – typically shapefiles – using the same steps described in Section G on uploading background images. To create a new shapefile, do the following:

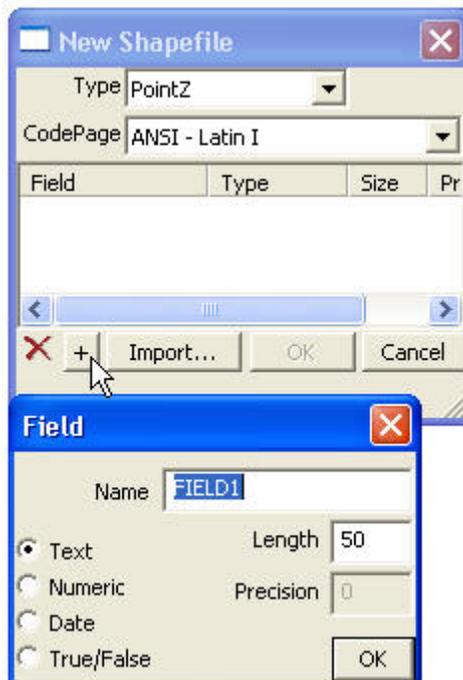
1. Click the file icon, select **New** and then **Shapefile**



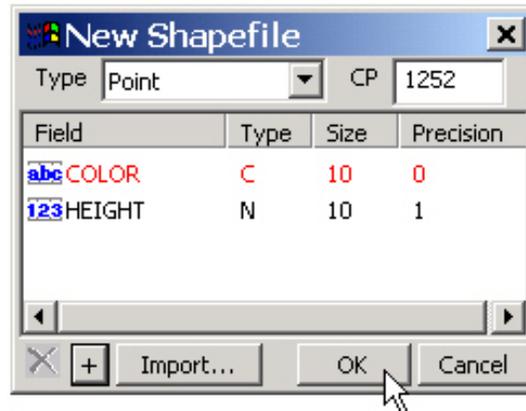
2. Select the geometry of the new shapefile. Note: if you want to record elevations with the features, you must select the “Z” type of each geometry: PointZ, PolylineZ or PolygonZ.



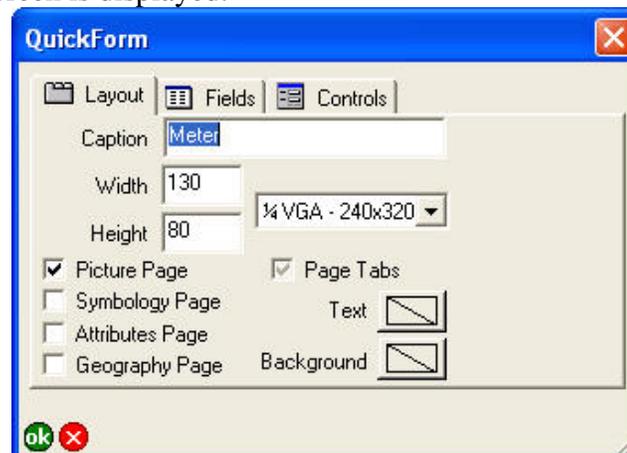
3. To give the new shapefile an attribute schema similar to an existing one, click the **Import** button and browse to an existing shapefile file and double-tap it.
4. To define new attribute fields, click the + button.



This brings up the Field screen, with “Field” being synonymous with “attribute.” Name the new attribute using the MMCE Input Panel (soft keypad) and select one of the options for the style of the attribute value. Tap the Enter/Carriage Return key on the Input Panel when done. Tap the + icon to add as many other attributes as you wish. When you are done adding attributes, click **OK** at the bottom left of the screen. (See screen on next page.)



- When you tap OK, ArcPad will ask you to save the newly created shapefile. Magellan recommends you save all your data to the SD card.
- ArcPad will now ask if you wish to create a QuickForm. If you tap **Yes**, a QuickForm screen is displayed.



To read more about QuickForms, on your PC click **Start > Programs > ArcGIS > ArcPad 7 > ArcPad 7.0.1 for Windows**.

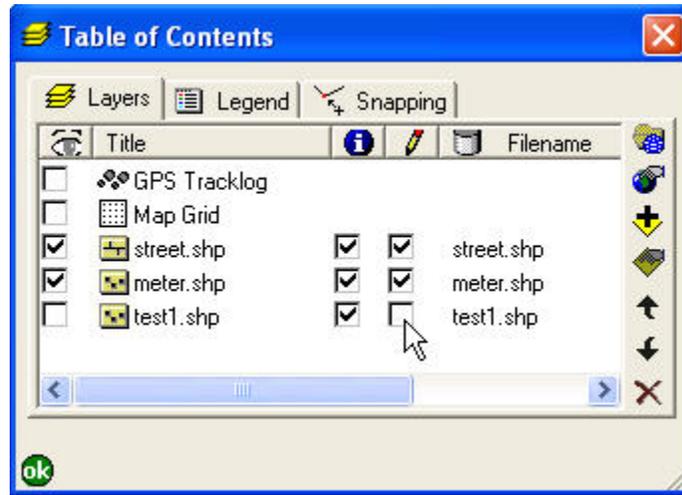
## H. Logging GPS Positions

The following steps illustrate a few quick steps to get you to the point where you can begin logging data. Please refer to the ArcPad manual for a thorough discussion of data logging.

- In order to log GPS positions, you must activate a layer. Click the **Table of Contents** icon:

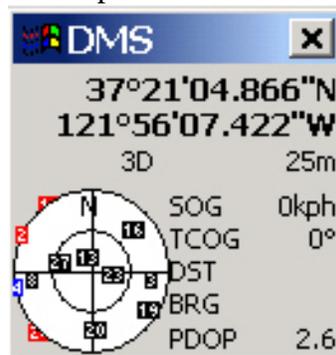


2. On the following window you will see the various layers comprising the ArcPad map project:

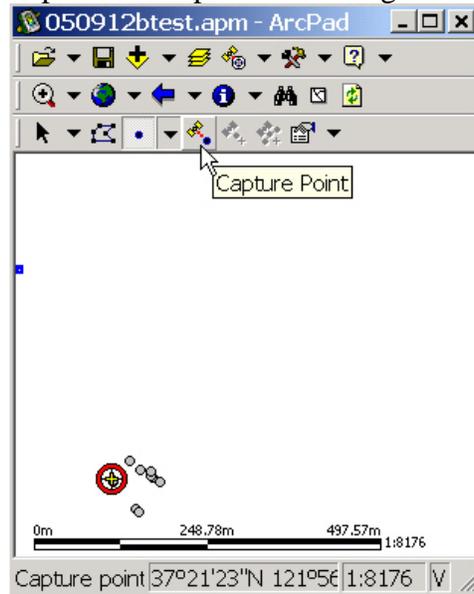


In the example above, you will note that only the “street” and “meter” layers (i.e., shapefiles) have checks in the Display column (under the eye icon) and in the Edit column (under the pencil icon). Only these layers will be displayed on the MobileMapper CE and only these layers will be editable. You cannot use the GPS receiver to log any new features into a layer unless it is made editable on this screen

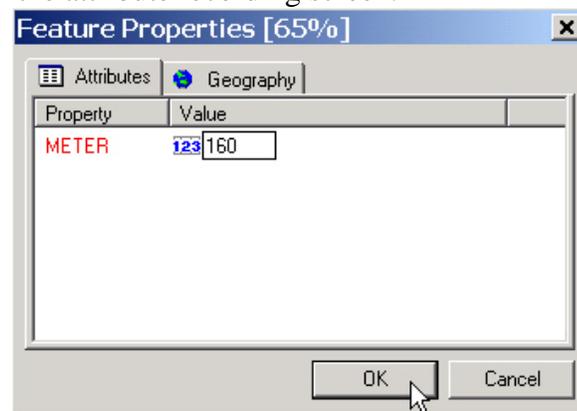
3. Turn on the **GPS Position Window** to see if you are tracking a sufficient number of GPS satellites to calculate a position.



4. If you set up a layer with point geometry, tap the GPS/Point icon (see below) to begin logging a GPS position. Tap on the icon again to stop logging.



5. After you begin logging, you then see a screen where you can record attributes. If you set up ArcPad to average a number of GPS positions for a point feature or for a vertex making up a polyline or polygon feature, you will see the progress status in the top line of the attribute recording screen.



6. When you finish your mapping session, name the map (if you have not done so already) and save it.

