

MMCE Tech Note: Installing and Using *GPSDifferential for ArcPad*

2 February 2007

A. Install *GPSDifferential for ArcPad* (ArcPad Version 6.0.3)

1. Insert the *GPSDifferential for ArcPad* SD card into MobileMapper CE. If you cannot find this SD card, you can download the necessary files (see below) from the /Mobile Mapping/MM CE/Software/GPSDifferential for ArcPad/ folder of ftp.magellangps.com.
2. Using Windows Explorer, browse the SD card and copy the following files to the MobileMapper CE folders indicated below. Note: the folder names indicated below are for the US version of ArcPad. Folder names may vary for the versions of ArcPad sold in other countries.
 - a. Copy PostProc.apa to /MyDevice/ESRI ArcPad 6.0/Applets
 - b. Copy PostProc.vbs to /MyDevice/ESRI ArcPad 6.0/Applets
 - c. Copy PostProc.dll to /MyDevice/ESRI ArcPad 6.0/Extensions
3. Turn off MMCE before running ArcPad by tapping Start>Suspend>Full Shut Down Mode.
4. When the power LED on the front panel shuts off, press the power button and restart MMCE.

B. Install *GPSDifferential for ArcPad* (ArcPad Version 7.0.1)

1. Insert the *GPSDifferential for ArcPad* SD card into MobileMapper CE. If you cannot find this SD card, you can download the necessary files (see below) from the /Mobile Mapping/MM CE/Software/GPSDifferential for ArcPad/ folder of ftp.magellangps.com.
2. Using Windows Explorer, browse the SD card and copy the following files to the MobileMapper CE folders indicated below. Note: the folder names indicated below are for the US version of ArcPad. Folder names may vary for the versions of ArcPad sold in other countries.
 - a. Copy PostProc.apa to /MyDevice/Program Files/ArcPad/Applets
 - b. Copy PostProc.vbs to /MyDevice/Program Files/ArcPad/Applets
 - c. Copy PostProc.dll to /MyDevice/Program Files/ArcPad/Extensions
3. Turn off MMCE before running ArcPad by tapping Start>Suspend>Full Shut Down Mode.
4. When the power LED on the front panel shuts off, press the power button and restart MMCE.

C. Enter the *GPSDifferential for ArcPad* activation code

Once you have installed *GPSDifferential for ArcPad* on MobileMapper CE, launch ArcPad. Tap the down arrow to the right of the Tools icon and tap "Start Logging GPS Raw Measurements." The first time you do this, you will see a pop-up window asking you to enter a 10-digit activation code for your MobileMapper CE receiver. This code is written on a letter included in your *GPSDifferential for ArcPad* package. If you did not receive this, please call your dealer. It is a good idea to keep this letter with the activation code for safekeeping. However, when you input the activation

code, MobileMapper CE writes a file called “mmppcode” to the MobileMapper CE’s **MyDevice** folder. This file contains the activation code that allows GPSDifferential to run. You can read it with Microsoft WordPad which is installed on MobileMapper CE, should you ever forget what this code is. The code file does not include a file extension, so you need tell WordPad to look for files of any type when you browse for the file.

D. Configure MMCE for real-time correction

In order to record files for post-processing, the MMCE cannot be set to correct positions in real-time using RTCM corrections. So you must set MMCE to record with either no corrections or with WAAS or EGNOS corrections.

1. Tap Start>Programs>GPS Utilities>DGPS Configuration
2. Tap the Mode tab
3. Tap the radio button for None, WAAS or EGNOS. *If you select MM Beacon or Other RTCM Source, you will NOT be able to record raw measurements for post-processing*
4. Tap OK at the upper right of the screen
5. Tap OK on the DGPS Configuration message screen. This will say either “Uncorrected GPS only” or “Integrated WAAS (or EGNOS) is used”
6. The DGPS Configuration utility will close and you may go on to Step C

E. Log data for post-processing

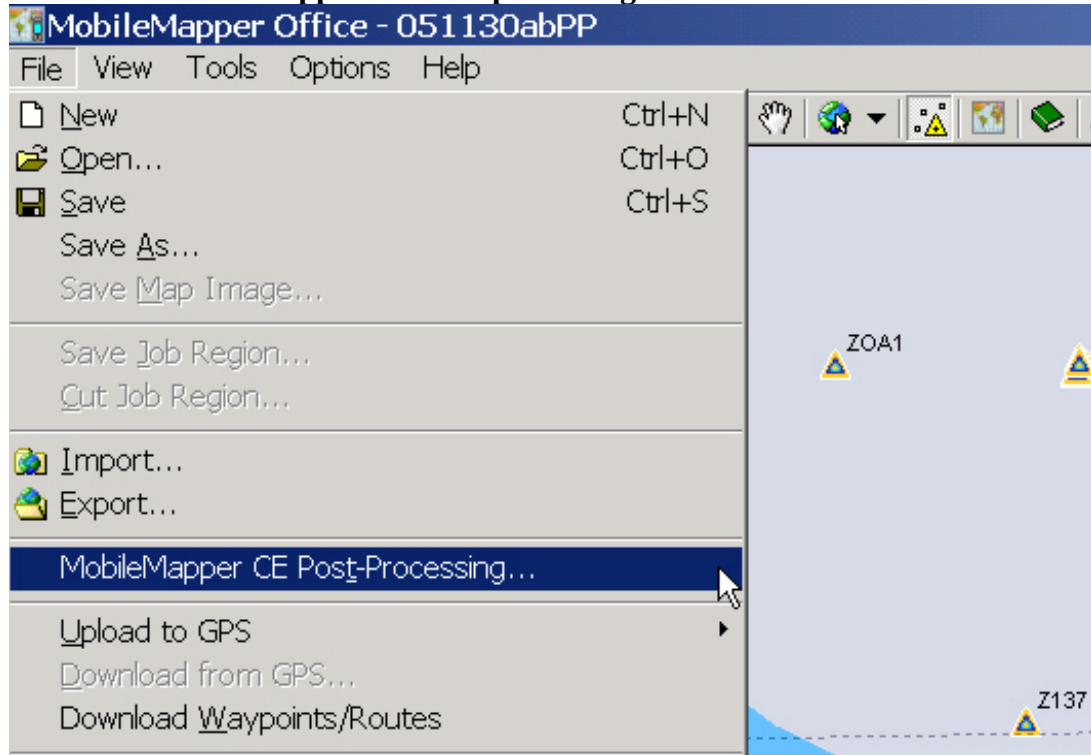
1. In the top ArcPad tool bar, tap the down-arrow next to the **Tools** icon (the hammer and wrench icon).
2. Tap **Start Logging GPS Raw Data**. The receiver will now log GPS raw data as soon as you activate the GPS receiver in ArcPad. For instructions on how to do this, please refer to the MMCE manual or to the tech note “Installing and Using ArcPad on MMCE.pdf” found on <ftp:magellangps.com> in the /Mobile Mapping/MM CE/Application Notes/ folder. Note: the raw measurements files are ONLY logged to the root directory of the MMCE SD card.
3. When you wish to stop logging GPS raw data, tap the down-arrow next to the **Tools** icon and then the **Stop Logging GPS Raw Data** option. You may also simply save the map you are working on and exit ArcPad.

Note: ArcPad 7’s offset feature will combine the real-time coordinates of the MobileMapper CE with the input offset. However, it is not possible at this time to post-process offset data recorded with ArcPad 7. We hope to support ArcPad’s offset feature with a future release of GPSDifferential for ArcPad.

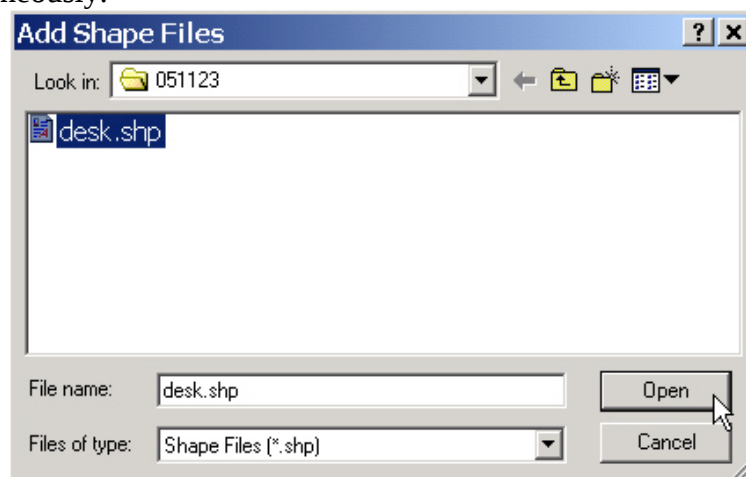
F. Download data into MobileMapper Office (MMO)

1. Copy the shapefiles and raw data from the MobileMapper CE SD card to a folder on your PC. You can copy them to your PC using ActiveSync or by putting the SD card in a card reader attached to your PC and using Windows Explore.

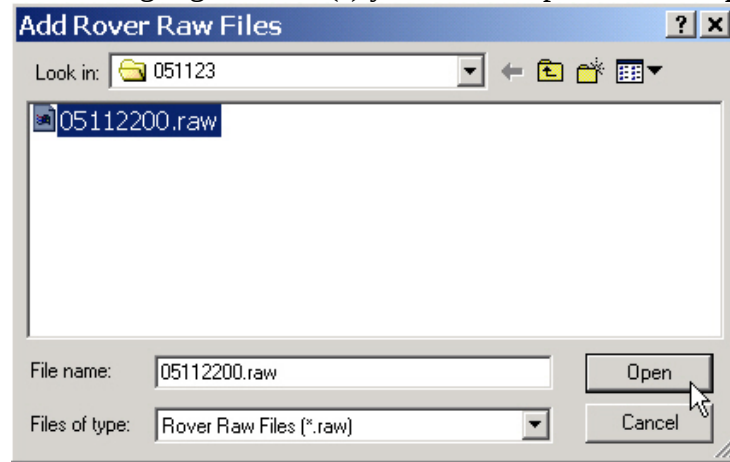
2. Run MMO version 3.33 or higher. If you do not have MMO installed on your PC, you can download a copy from ftp.magellangps.com in the /Mobile Mapping/MM CE/Software/MM Office/ folder. Click **Help>User Manual** for instructions in running MMO.
3. Click **File>MobileMapper CE Post-processing...**



4. On the **Add Shapefile** screen, browse to the folder on your PC where you copied the shapefiles, *.apm file and raw measurement files. Highlight the name of the first shapefile you wish to process and click **Open**. You may also click the first file and press the Control or Shift button and click on additional files to upload simultaneously.



5. The **Add Rover Raw Files** screen will automatically appear. Browse to the folder on your PC where you copied the shapefiles, *.apm file and raw measurement files. Highlight the name of the raw measurement file MobileMapper CE recorded while you were recording the shapefile(s). Raw files are automatically given names with the date of recording and then two digits to indicate separate logging sessions. For example, the file highlighted below was the first file recorded on 22 Nov 2005. After highlight the file(s) you wish to upload, click **Open**.

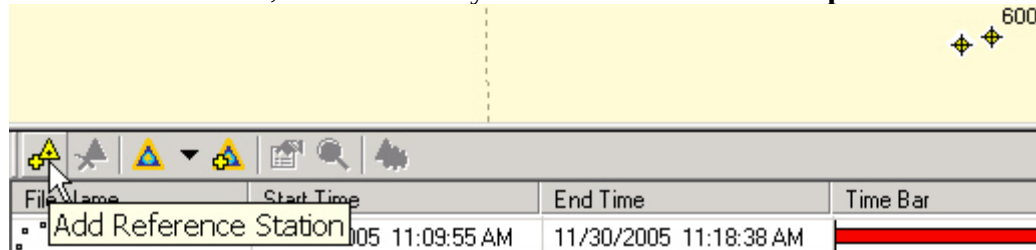


6. After adding the shapefiles and raw measurement files, the recorded features will appear in MMO's Map Display Area and a time view of the shapefiles will appear as red bars in the Differential Correction window beneath the Map Display Area.

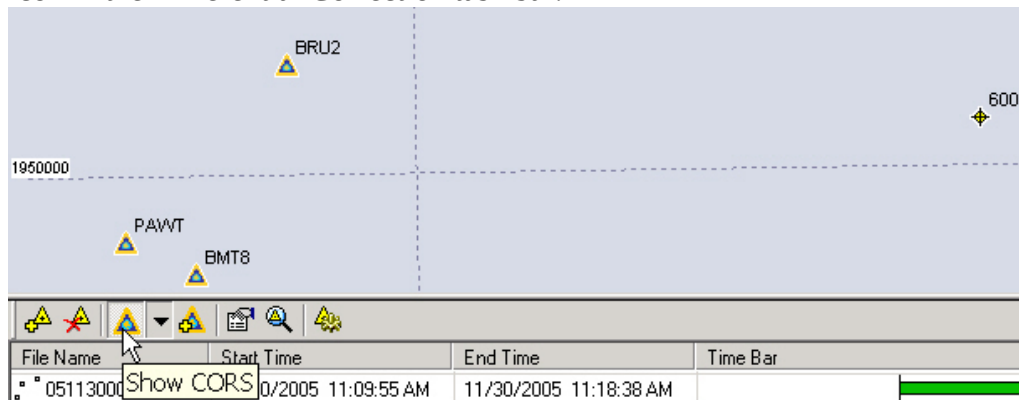
Note: When you open up an ArcPad shapefile in MMO, MMO imports the file and creates an .mmj (MobileMapper job) file. The original shapefile(s) are no longer necessary for post-processing, but you should save them for your records. Raw data files (with the .raw file extension) are compressed files. When MMO opens a .raw file, it automatically extracts five files (with .Bxx, .Dxx, .Exx, .Ixx and .Wxx file extensions, where "xx" is a two digit number starting with 00 that increments for each job recording session). These are the files that MMO actually post-processes. If you archive your job files, be sure to archive all of these files in the same folder. If you lose any of the B-, D-, E-, I- or W-files, you can use MMO (and only MMO) to re-extract them from the .raw file.

G. Post-process the data with MobileMapper Office.

1. Download reference station data according to the instructions in the MMO User Manual. You may use B-files files from another Magellan survey or GIS receiver that you place over a control point or RINEX files from CORS stations. To add reference station data that you already have stored on your PC, click the Add Reference Data icon, browse to file you wish to use and click **Open**.

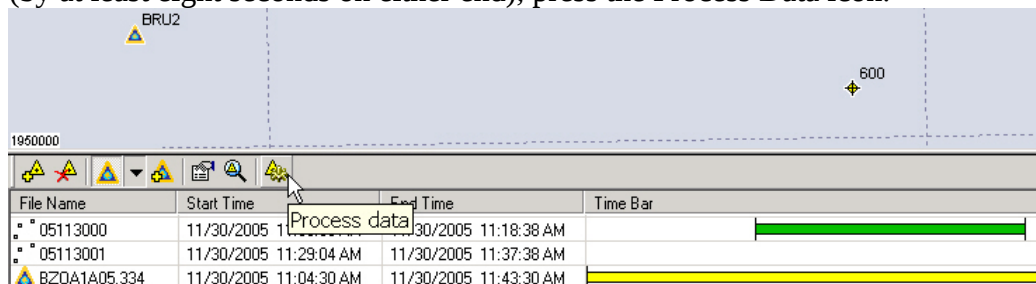


2. To determine the location of CORS stations near your job, click the Show CORS icon in the Differential Correction task bar.



Then double-click on the CORS station you wish to download data from and download the file according to the instructions in the MMO User Manual.

3. When you have downloaded reference station files that overlap the “rover” files (by at least eight seconds on either end), press the Process Data icon.



4. MMO differentially corrects the GPS raw measurements and the resulting positions overwrite the real-time positions in the MMJ file. To preserve the original, real-time job file, save the post-processed version with a new name by clicking **File>Save As...**

H. Export the MobileMapper job file to shapefile format

To read the .mmj file in your ArcGIS desktop application, you need to export the .mmj file to shapefile format and import this new shapefile into your GIS. The shapefiles recorded by ArcPad on the MMCE are NOT post-processed in any way and contain positions that are either uncorrected or corrected in real-time by WAAS, EGNOS or RTCM signals, depending on what you selected in Step D3 above. To export the job to shapefile format do the following:

1. Click **File>Export** and select SHP in the “Files of Type” window.
2. Browse to the folder on your PC or network that you want to save the new shapefiles in.
3. Click **Export**.

The newly created shapefiles will have the same name as the ones originally recorded by ArcPad in the MMCE. To avoid any confusion or the potential for overwriting the original shapefiles, you should edit the names of the post-processed shapefiles so as to distinguish them from the originals.