DVRPC ArcPAD Stormwater Outfall Collection Form
Installation & Field Collection

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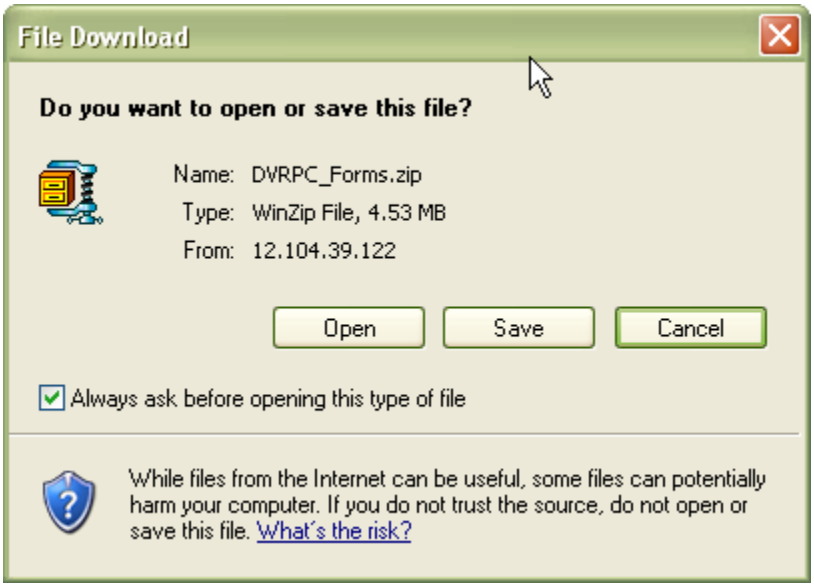
Introduction

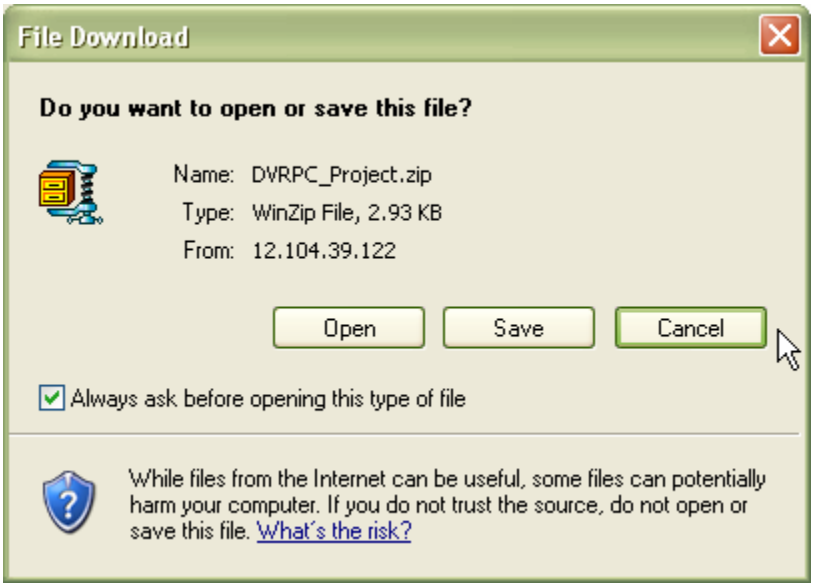
This document is intended to walk users through a step-by-step process for installation of the ArcPAD Stormwater Forms created for DVRPC and their partners. For those who do not have a license of ArcPAD, interested parties can download a eval copy of ArcPAD from ESRI's website at; http://www.esri.com/software/arcgis/arcpad/download.html

DVRPC Form Installation

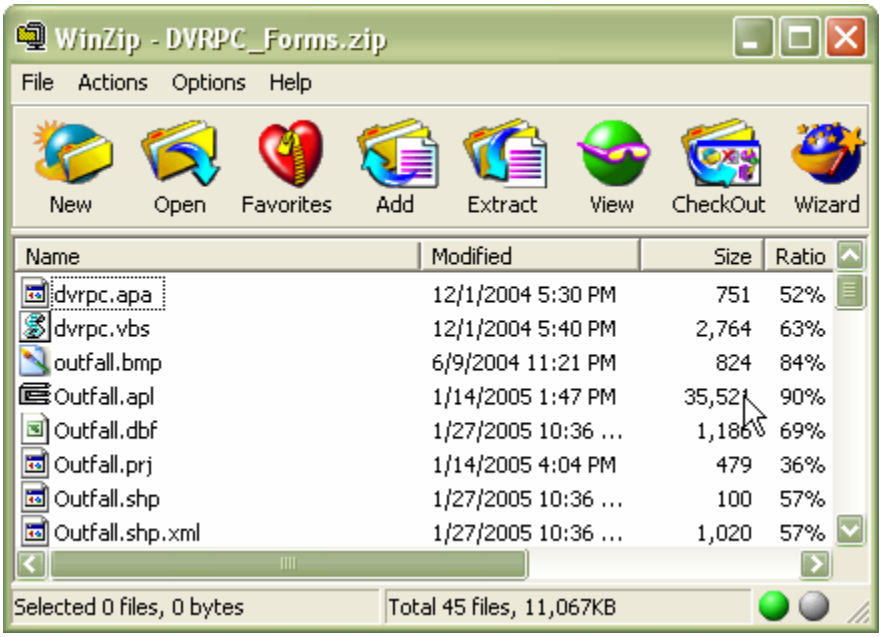
1. On the DVRPC Download web page, click the "ArcPad Forms files" link. When prompted, click the Save button to download the "DVRPC_Forms.zip" file to your desktop machine.



2. On the DVRPC Download web page, click the "ArcPad Project and Preferences file" link. When prompted, click the Save button to download the "DVRPC_Project.zip" file to your desktop machine.

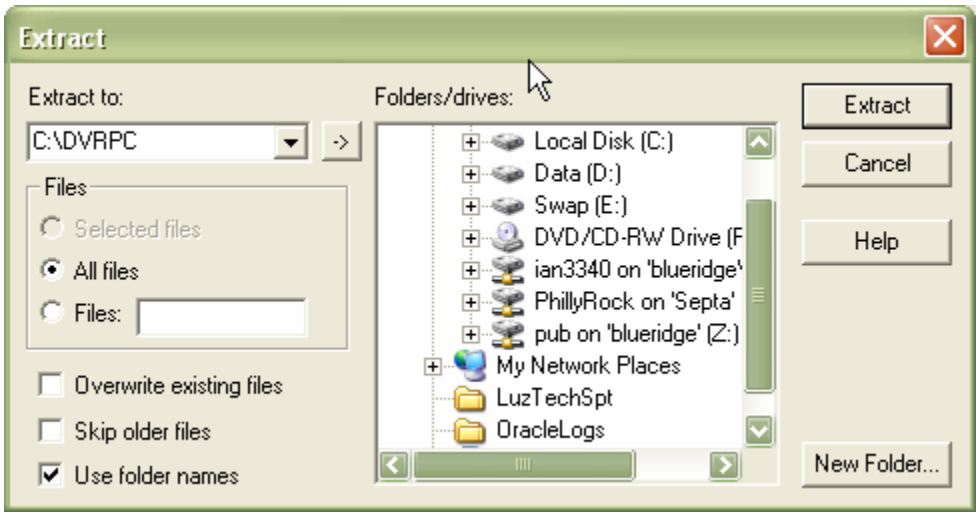


3. Create a folder called "DVRPC" on your desktop computer.
4. Open the "DVRPC_Forms.zip" file in WinZip.

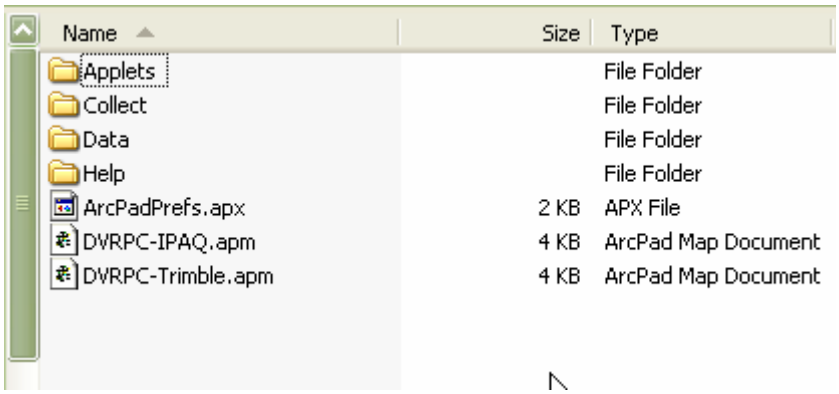


5. Click on the Extract button.

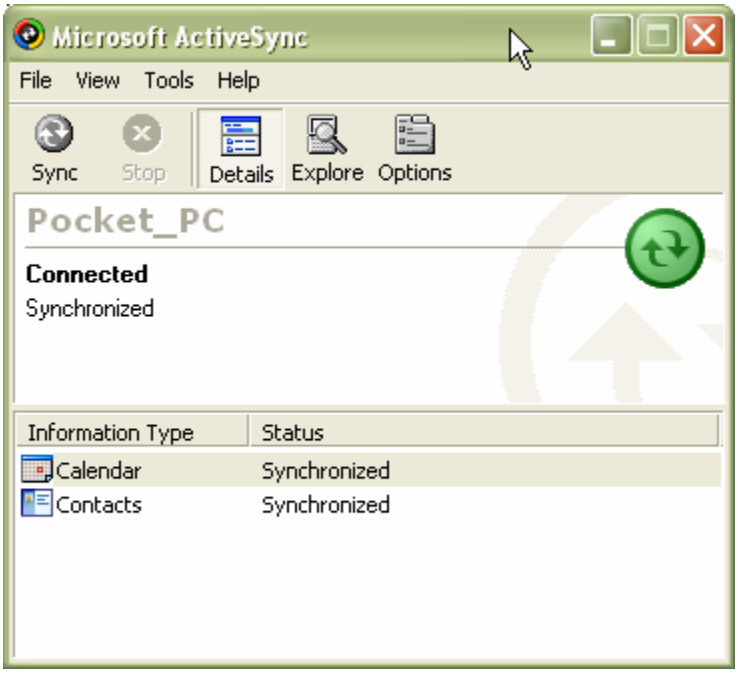
6. In the Extract window, select the path to the "DVRPC" folder you created in step #3. The path will appear in the "Extract to:" drop down box located in the top-left of the Extract window. Make sure the "Use folder names" checkbox is selected.
7. Click the Extract button. The files will be transferred to the "DVRPC" folder.



8. Follow steps #4-7, using the "ArcPad_Project.zip" file.
9. The contents of the "DVRPC" folder should have 4 folders (Applets, Collect, Data, and Help), an arcpadprefs.apx file, a DVRPC-IPAQ.apm file, and a DVRPC-Trimble.apm file.



10. Connect your handheld device to your desktop computer using ActiveSync.



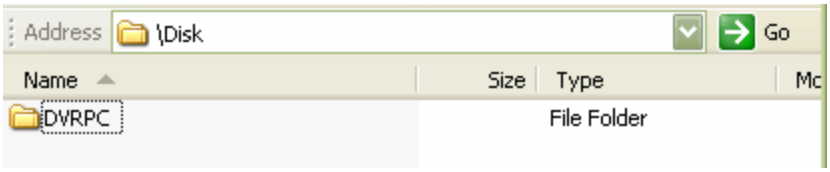
11. After you establish a connection to your handheld device, open the My Computer folder. On Windows XP, it is located under the Start button menu. On Windows 2000, it is located on your desktop.
12. Double-click on the Mobile Device drive.
13. A list of folders and files will appear. This is the folders and files on your handheld device. By default, it opens the contents of the "My Documents" folder on your handheld device. Double-click on the "My Pocket PC" folder.

The "My Pocket PC" folder contains the base level of files and folders on your handheld device (similar to the C:\ drive on a desktop PC). For the Trimble device, you will be

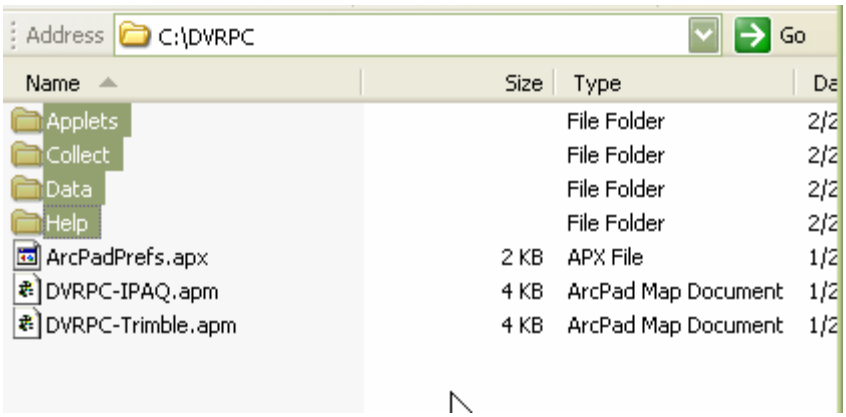
interested in the "Disk" and "My Documents" folder. The IPAQ will just deal with the "My Documents" folder, unless a storage card is present. The "Disk" folder represents a separate physical storage device inside your unit. This is where all shapefiles should be stored.

14. Double-click on the "Disk" folder.

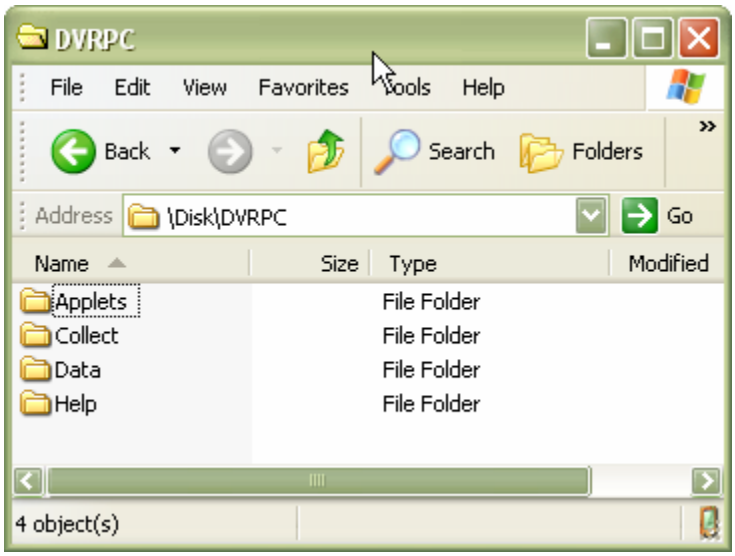
15. Click on File…New Folder from the file menu. Name the folder "DVRPC".



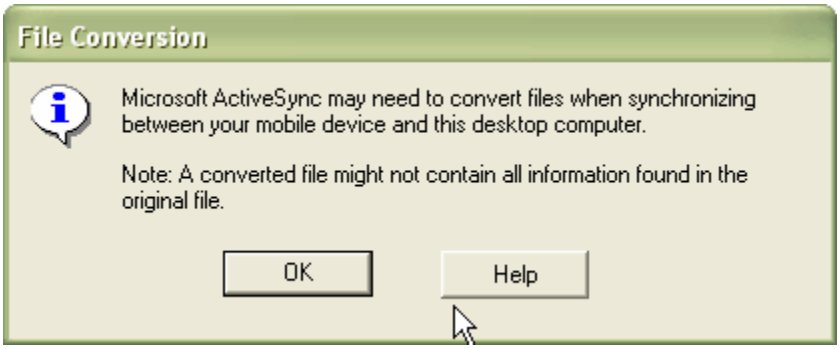
16. Double-click on the "DVPRC" folder.
17. Leaving this window open, click on the My Computer folder again to open a new window. Navigate to the "DVRPC" folder that you created on your desktop PC (step #3).
18. Select (one-click) the "Applets" folder.
19. Hold your <CTRL> key down and select the remaining three folders.



20. Select Edit…Copy from the file menu.
21. Activate your Mobile Device window (the one we left opened).
22. Click Edit…Paste. Note: Make sure the path reads "\Disk\DVRPC\" in the Address box.

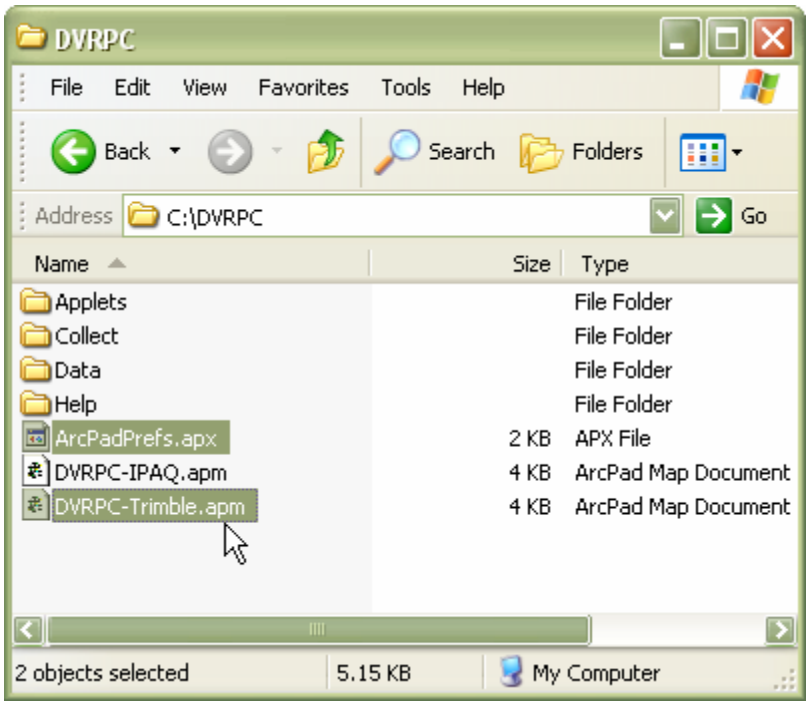


23. During the file copy process you may receive a message notifying you that some files may need to be converted. Click OK.

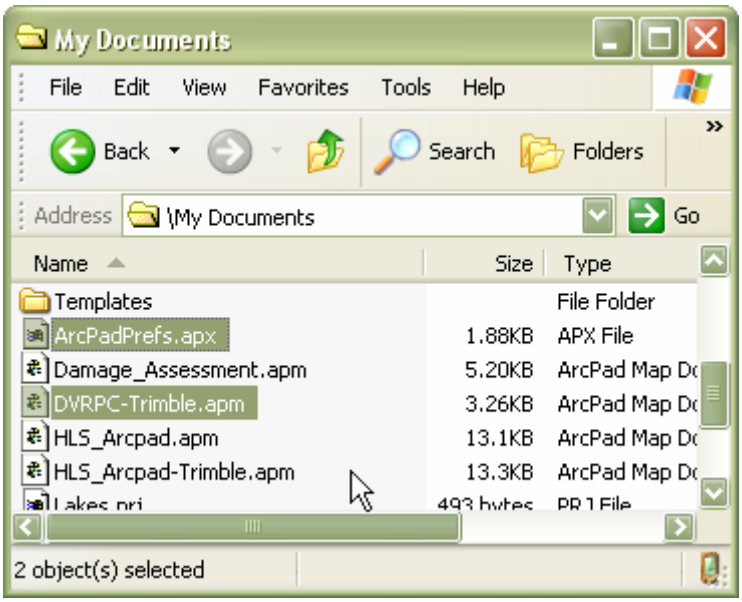


24. Activate your DVRPC window on your desktop PC.
25. Select (one-click) the "ArcPadPrefs.apx".

26. Hold your <CTRL> key down and select the "DVRPC-Trimble.apm" file. Note: IPAQ users will want to select the "DVRPC-IPAQ.apm" file.



27. Select Edit…Copy from the file menu.
28. Activate your Mobile Device window (the one we left opened).
29. Use the Back button to go up to directory levels where you see the "Disk" and "My Documents" folders.
30. Double-click on the "My Documents" folder.
31. Click Edit…Paste. Note: Make sure the path reads "\My Documents" in the Address box.

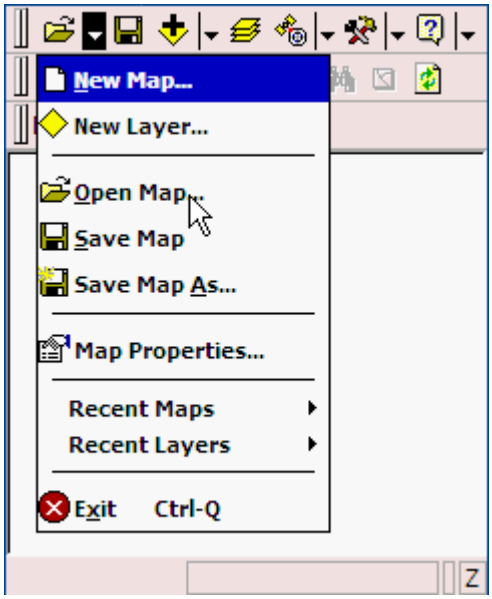


32. Launch ArcPAD
33. Your are now ready to collect outfalls.

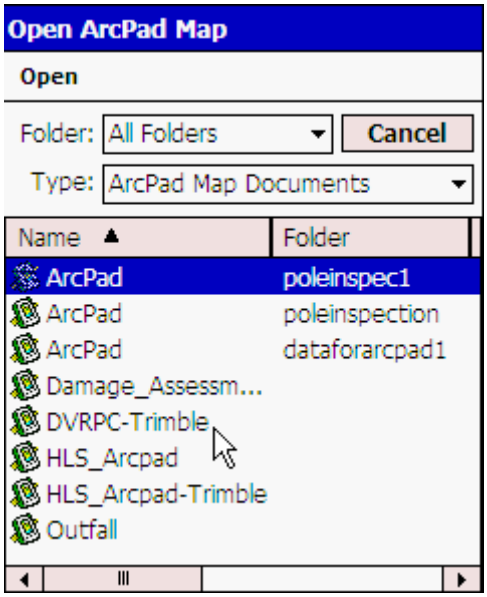
NOTE: If you are using another type of device like the Compaq IPAQ, you will need to set the folder paths in ArcPad. Please refer to Appendix I.

Conducting Outfall Collection

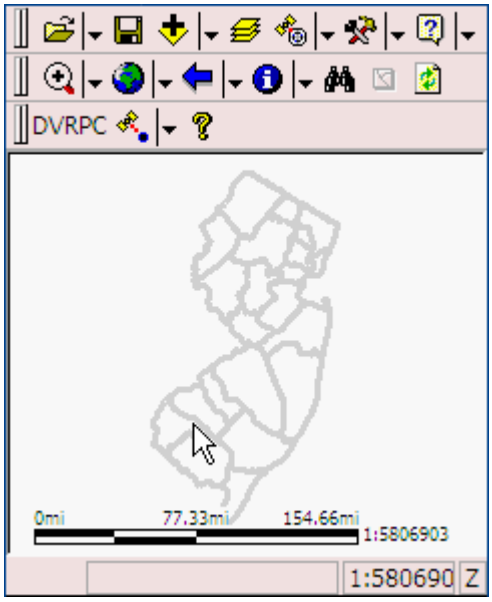
1. Launch ArcPAD
2. Open the ArcPAD project by clicking on the top left 'folder' button. Tap on Open Map option.



3. Open the 'DVRPC-Trimble.apm' or 'DVRPC-IPAQ' .APM

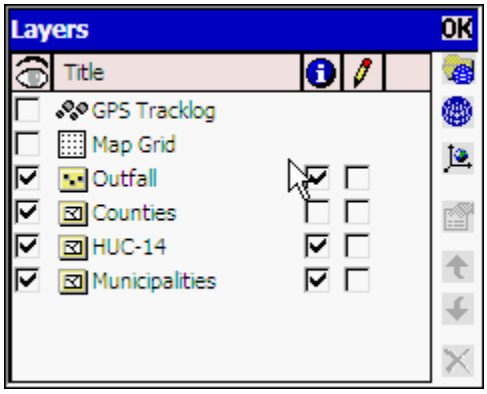


4. You should see the county outlines for the state of NJ.



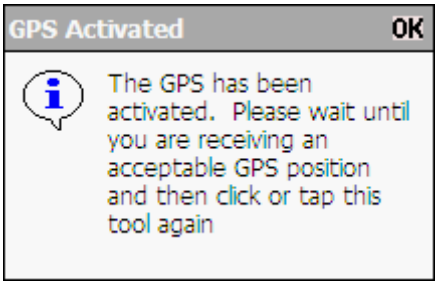
The application contains four layers. Some layers have scale dependencies assigned to them. Scale dependencies restrict the layer from being drawn at map scales outside the specified range in the ArcPad project file. In this map document, the layers were restricted from being drawn above a specified map scale to improve performance. The current map scale is shown in the bottom-right of the screen in the status bar. The map layers, map layer name (as seen in ArcPad), and the respective map scales are listed below:

- Outfalls – Outfall – No scale dependency set
- NJ Counties – Counties – No scale dependency set
- NJ HUC 14 Watersheds – HUC-14 – visible below 1:143816
- NJ Municipalities – Municipalities – visible below 1:897801



5. For collecting outfalls, you will be using the tools on the DVRPC toolbar in ArcPad. There are two methods for collecting outfalls. The first uses the GPS device and the second uses manual placement.
    a. **Outfall by GPS**
        i. Tap on the Outfall by GPS button.

ii. A message will appear notifying you that the GPS unit is activated and that you will need to wait for a signal.
iii. Tap the OK button.



iv. Tap the GPS button on the File toolbar. The Geodetic window will appear. This provides information on the GPS satellite connection information. NOTE: Please refer to the *Manually Activating and Deactivating the GPS Unit* section in Appendix III.
v. Tap the GPS button again to close the Geodetic window.
vi. A red crosshair will also appear when the GPS is active. The crosshair will show the current status of the GPS connection. The table below shows the two different crosshair statuses.

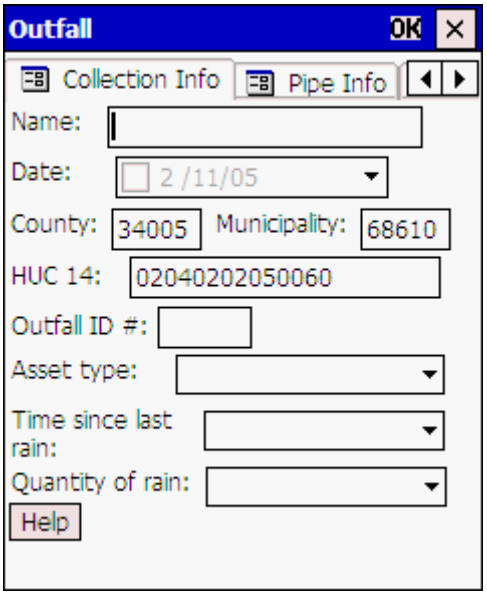
No Connection	Good Connection

vii. Once you are receiving a healthy signal from the satellites, click on the Outfall by GPS button again.
viii. A point will be created on the map, at your reported location.

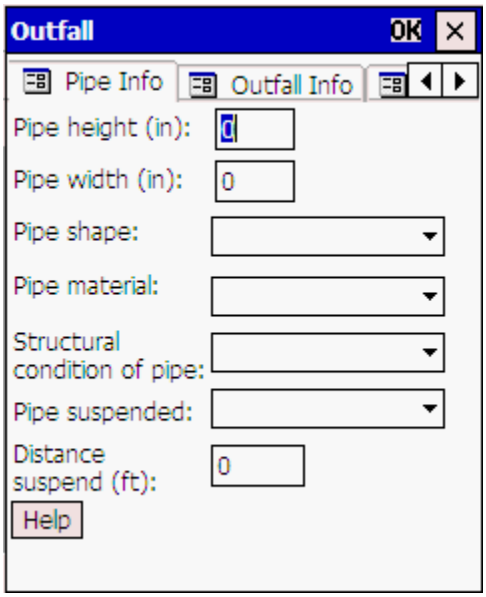
b. **Outfall by Hand**
i. Zoom to an area of interest.
ii. Tap on drop down arrow next to the Outfall by GPS button and click the "Outfall by Hand" tool.

iii. Tap the Outfall by Hand tool on the toolbar.
iv. Tap on the estimated location on the screen.

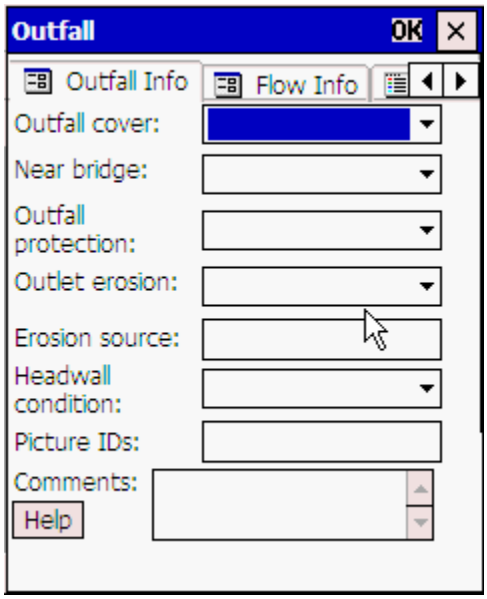
6. The Outfall collection form will appear. The Collection Info page will be displayed by default. Notice that the County, Municipality, and HUC 14 values are automatically populated based on the location of your outfall. Fill in the information for the Collection Info page.



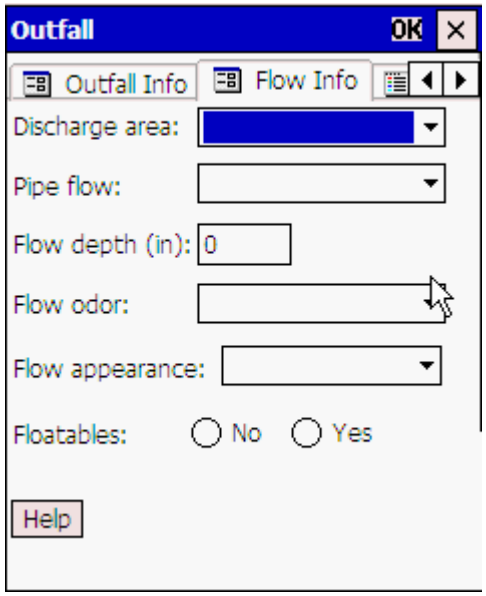
7. Tap on the Pipe Info page. The Pipe Info page allows you to enter information about the pipe characteristics at the outfall. Please note that "Pipe height" and "Pipe width" are required values.



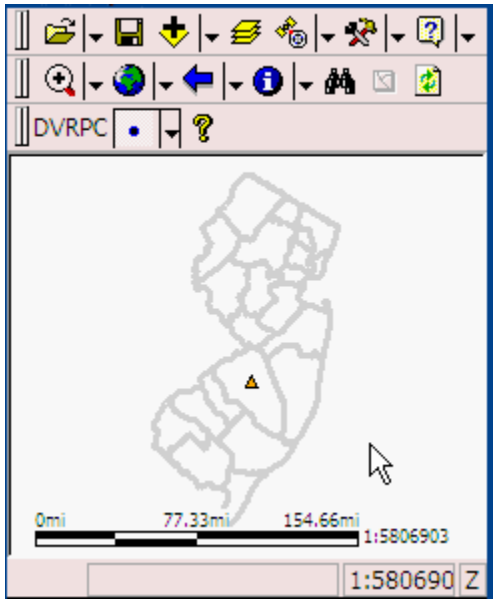
8. Tap on the Outfall Info page. This page allows you to enter information about the characteristics around the outfall.



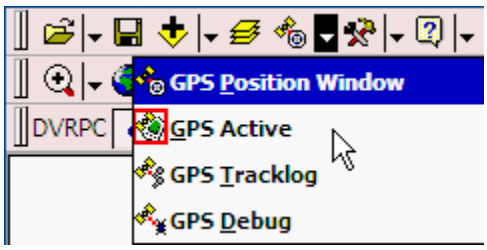
9. Tap on the Flow Info page. This page allows you to enter information about the characteristics of the flow from the outfall.



10. When you are down entering information, tap the OK button in the top-right corner of the form. The new outfall feature will appear on the map symbolized as an orange triangle. You can now go onto the new outfall location.



11. If you used the Outfall by GPS tool, you can deactivate the GPS device by clicking on the drop down arrow next to the GPS button and tapping the "GPS Active" tool option.

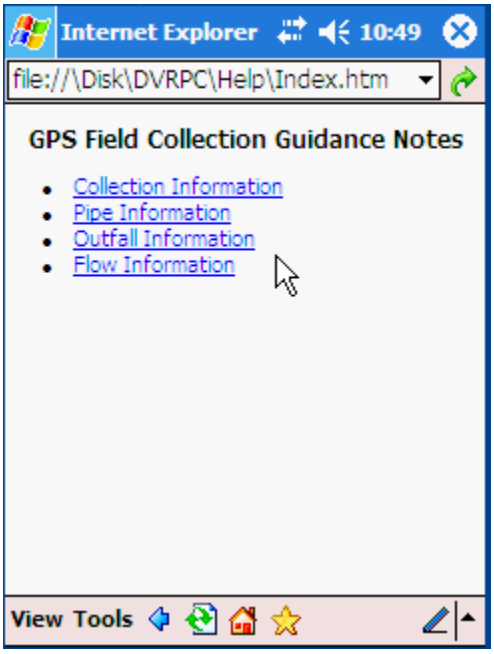


The Help Tool

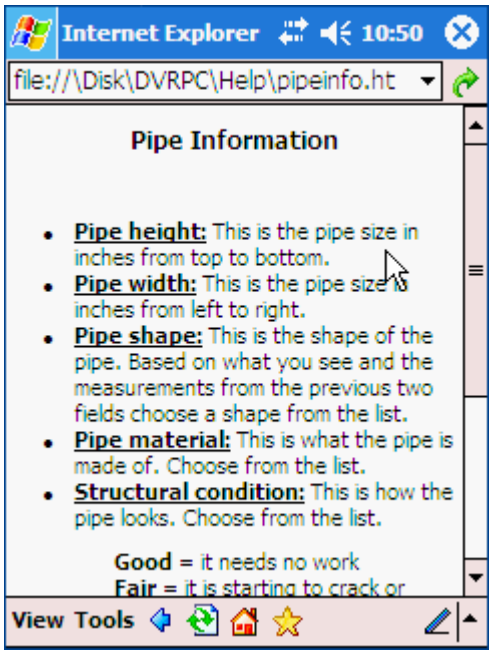
The DVRPC toolbar contains a tool that directs you to a help document. This document contains detailed information on each of the outfall pages and pictures (i.e. examples of erosion).

12. On the DVRPC toolbar in ArcPad, click on the Help tool.

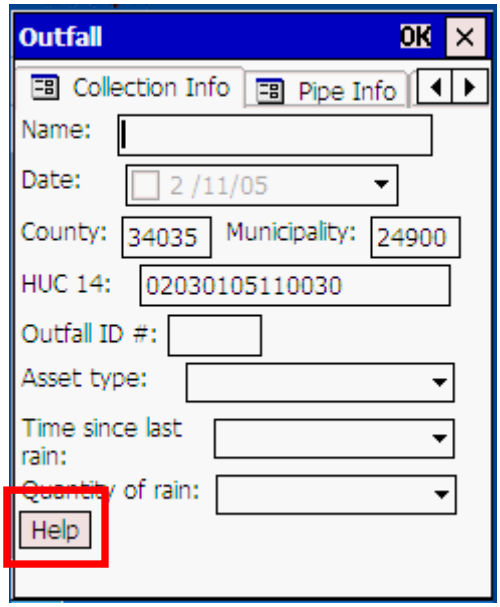
13. An Internet Explorer window will open on the handheld device. This page contains links to the four sections of the help document. Simply click on the link that represents the topic you are interested in.



14. The link will take you to a more detailed discussion on that topic. To close the help, click on the "X" button on the top-right corner of the window.

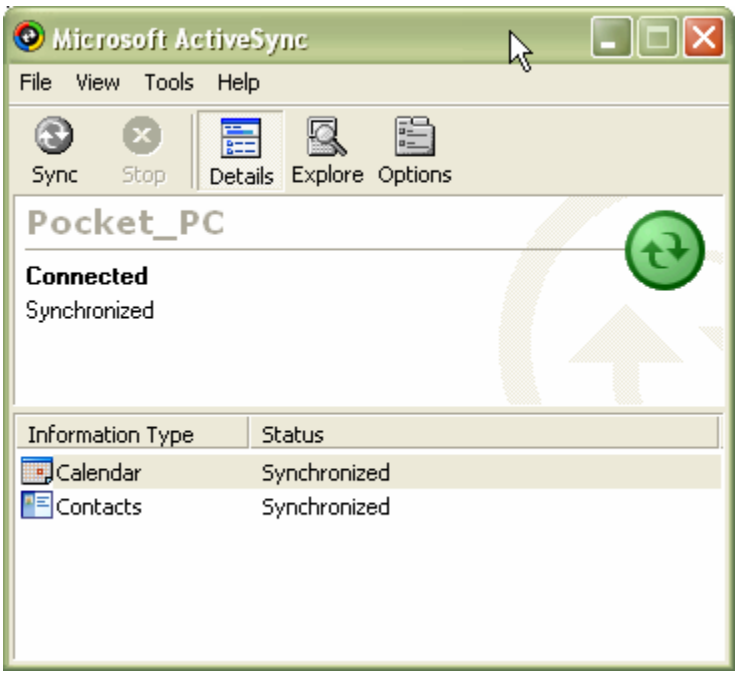


Apart from the DVRPC toolbar, you can also access the Help documents on each page of the Outfall collection form. A "Help" button is located at the bottom-left corner of each page.



Transferring Outfalls back to the Desktop PC

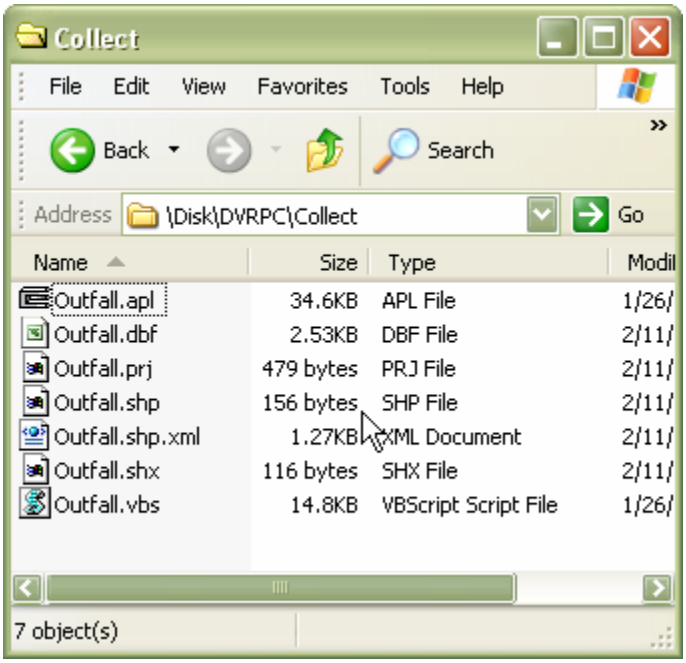
1. Connect your handheld device to your desktop PC using ActiveSync.



2. After you establish a connection to your handheld device, open the My Computer folder. On Windows XP, it is located under the Start button menu. On Windows 2000, it is located on your desktop.
3. Double-click on the Mobile Device drive.

4. A list of folders and files will appear. This is the folders and files on your handheld device. By default, it opens the contents of the "My Documents" folder on your handheld device. Double-click on the "My Pocket PC" folder.

5. Double-click on the "Disk" folder.
6. Double-click on the "DVRPC" folder.
7. Double-click on the "Collect" folder. This folder contains the outfall shapefile and ArcPad form files.

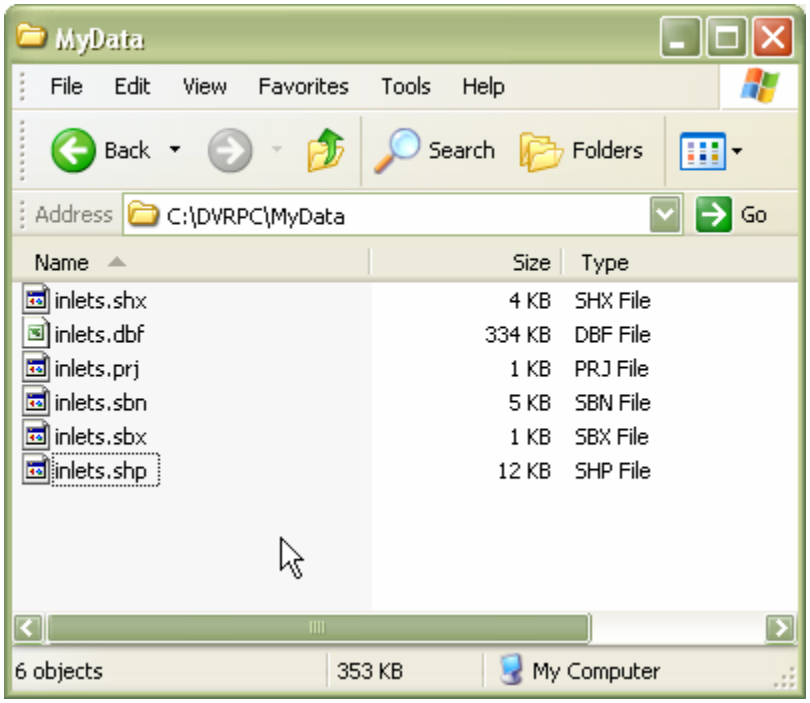


15. Select (one-click) the "Outfall.dbf".
16. Hold your <CTRL> key down and select the "Outfall.prj", "Outfall.shp", "Outfall.shp.xml", and "Outfall.shx" files.
17. Select Edit…Copy from the file menu.
18. Click on the My Computer folder again to open a new window.
19. Navigate to a location on your desktop PC where you would like to place your Outfall shapefile.
20. Click Edit…Paste.
21. You can now open and view that shapefile in ArcMap.

Adding Your Own Data

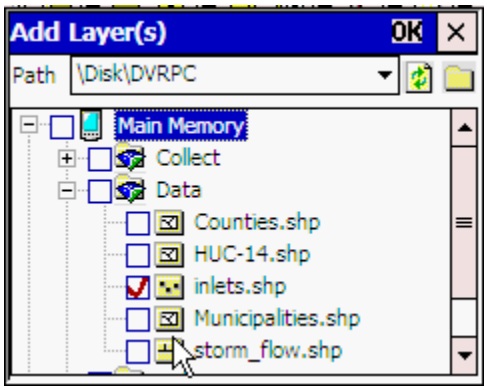
You can add your own data into the ArcPad project file and take out into the field. For the default DVRPC files, the project is in the New Jersey State Plane North American Datum 1983 coordinate system. All layers will need to be in the same coordinate system for them to display correctly.

1. Using the file copy skills that were outlined in the *DVRPC Form Installati*on section of this manual, copy the new shapefile(s) to the \Disk\DVRPC\Data folder on your handheld device. NOTE: I am putting my background shapefiles in the Data folder. They can go anywhere on the handheld device.

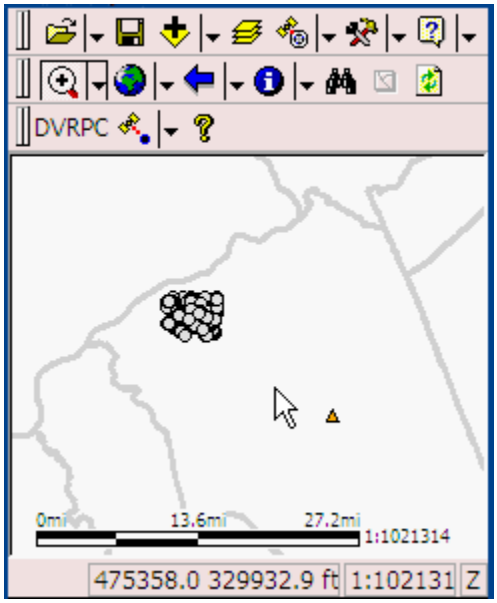


2. Open the DVRPC ArcPad project file on your handheld device.
3. Click on the Add Layer tool.

4. In the Add Layers window, click the "+" symbol next to the Data folder.
5. Tap the checkbox next to the layer you would like to add to the ArcPad project. A red checkmark will appear in the checkbox.



6. Click the OK button.
7. Your layer will now appear in your project.

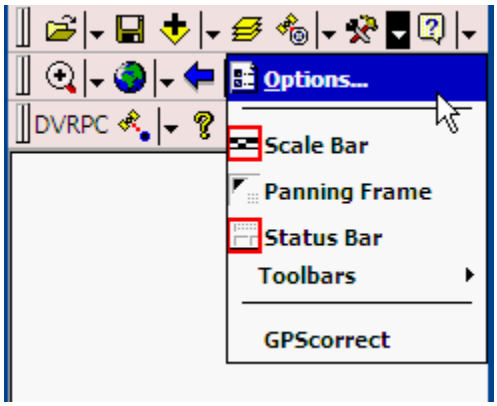


Appendix I

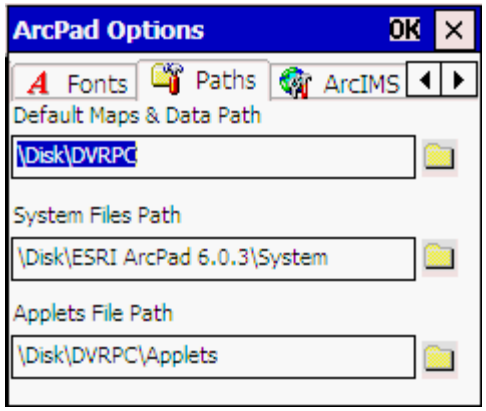
Setting Paths in ArcPad

It may sometimes be necessary to set data, applet, and system paths in ArcPad.

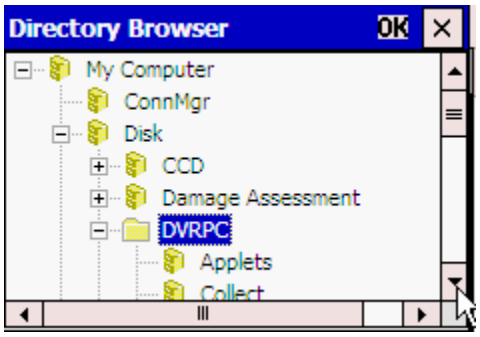
1. On the taskbar, tap the Start Button and then select ArcPad 6.0.3.
2. In ArcPad, tap the Options button. The Options dialog appears.



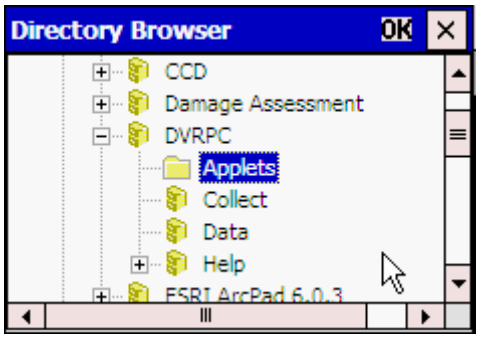
3. Click the Browse button to the right of the Default Maps & Data Path text box.



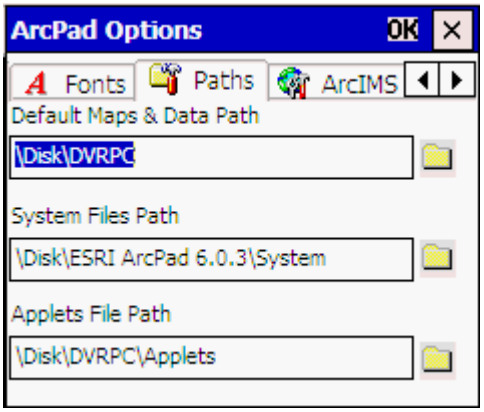
4. The Directory Browser window will appear. Tap on the "+" next to the Disk folder.
5. Tap the DVRPC folder to select it. NOTE: This will be the folder where you copied the four folders to on your handheld.
6. Tap OK.



7. The path of the folder will be populated in the Default Maps & Data Path text box. Click the Browse button to the right of the Applets Files Path text box.
8. The Directory Browser window will appear. Tap on the "+" next to the Disk folder.
9. Tap on the Applets folder to select it. NOTE: This will be the Applets folder which is located in the folder where you copied the four folders to on your handheld.
10. Tap OK.



11. Tap the OK button on the ArcPad Options title bar.



12. Click on black down arrow next to the File button.
13. Tap the Exit option from the drop down menu.

The next time ArcPad is open, it will use the paths that were just set in the steps above.

Appendix II

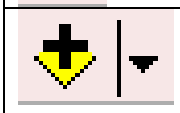
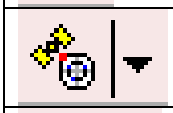
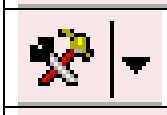
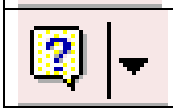
Starting ArcPad

The first thing you will need to do to start collecting data is to turn on your handheld device. Press the Power button located at the bottom-center of your handheld unit. Next, start ArcPad by clicking the Start button found in the upper-left corner of the screen, and select the ArcPad 6.0.3 option. You should see the ArcPad logo appear followed by the ArcPad interface screen. If you have not registered your copy of ArcPad yet, a dialog box will appear and ask for your registration number. This number can be found in your ArcPad software box. This box will continue to appear until you enter your registration number.

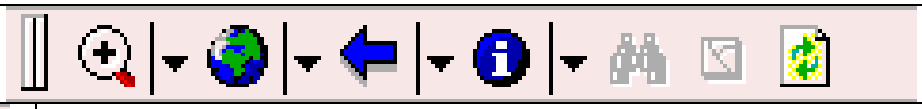
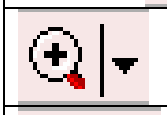
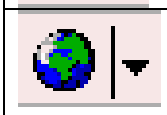
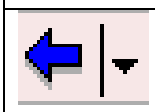
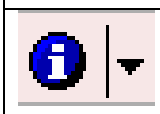
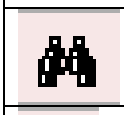
Familiarizing yourself with ArcPad

This section will briefly cover the functions of each button located in the File and Browse toolbars in ArcPad. For a more detailed description of the File and Browse toolbar buttons' functions, please refer to the Using ArcPad book, which comes with your ArcPad software.

File Toolbar

	File - This button allows you to open an ArcPad project file. The black arrow will display a dropdown box that allows you to create, open, or save a project file (You can create a project file to open ArcPad to the same map view). It also allows you to exit ArcPad.
	Save - This button allows you to save your project file. It will save it to the exact view you see at the time.
	**Add Layer** - This button allows you to add a layer into your project. The black arrow will display a dropdown box that allows you to connect or navigate to other sites – you probably will not need to use this last feature.
	Layers - This button allows you to display and select layers for editing so you can fill out the mosquito forms.
	**GPS** - This button allows you to startup the GPS and toggles the Geodetic DMS window. The black arrow will display a dropdown box that allows you to enable/disable the GPS unit.
	**Options** - This button allows you to configure ArcPad options. The black arrow will display a dropdown box that allows you to turn on/off the toolbars.
	**Help** - This button allows you to view help files in ArcPad.

Browse Toolbar

	
	**Zoom In** - This button allows you to zoom in on the map using the pen. The black arrow will display a dropdown box that allows you to zoom in, zoom out, and pan on the map using the pen.
	**Full Extent** - This button allows you to zoom out to the full extent of all the map layers. The black arrow will display a dropdown box that allows you to do a fixed zoom in, fixed zoom out, zoom to selected feature, zoom to full extent, and zoom to a specific layer.
	**Back to Previous Extent** - This button allows you to return to the previous extent of the map. The black arrow will display a dropdown box that allows you to return to a previous map extent, go to the next map extent, set map scale, and create/manage bookmarks.
	**Identify** - This button allows you to identify features on the map. The black arrow will display a dropdown box that allows you to identify features, do three types of measurements, set hyperlinks and select a feature on the map.
	**Find** - This button allows you to search the attribute data on a specified layer.
	Clear Selected - This button allows you to clear all selected features on the map.
	Refresh - This button allows you to refresh the map screen.

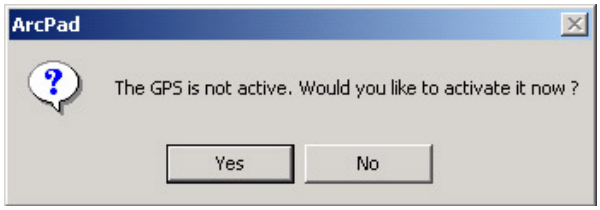
Appendix III

Manually Activating and Deactivating the GPS Unit

During regular collection, you do not need to manually activate the GPS Unit. However, it is important to be familiar with how the GPS Unit and ArcPad interact, so it is worth mentioning. The key features will be discussed below. For more information on GPS functionality, please consult your ArcPad 6.0.3 manual.

There are two ways to manually activate the GPS unit. The first is a shortcut that will activate the GPS unit and display the Geodetic DMS (GPS status window) window all at once.

1. Tap on the GPS icon located on the File toolbar.
2. A dialog box should appear asking if the GPS unit should be activated. Tap Yes.

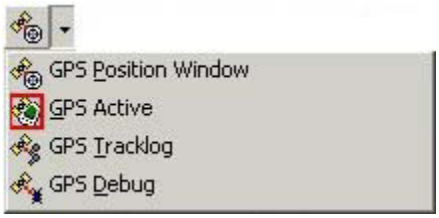


3. A crosshair will appear on the map and the Geodetic DMS window will appear on the screen. The Geodetic DMS window displays the connectivity status and information for your GPS unit. In the left graphic below, the GPS unit has not yet found the necessary satellites to provide a location. The numbers represent the different satellites that the GPS can communicate with. If the number has a red background, it means that the connection is not "healthy". If it has a blue background, it means that the connection is "healthy" and that the GPS unit can use that satellite to acquire a location. Typically, you need 3-4 satellites to get a good location. When this occurs, the background for those satellites will change to black and the location information will be displayed. The latitude and longitude are displayed in the top of the Geodetic DMS window.

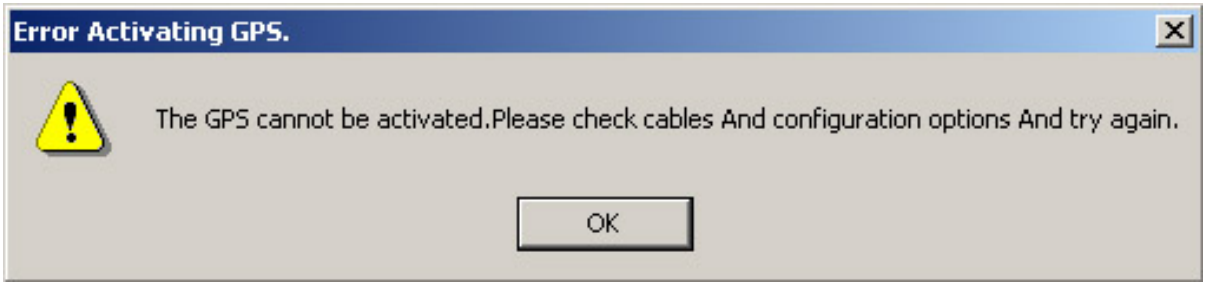
4. You may close this window at any time, by tapping the "X" button in the top right corner.

The second method involves using the GPS icon's dropdown arrow to display the dropdown menu located to the right of the icon.

1. In the File toolbar, tap the dropdown arrow to the right of the GPS icon. Four options will appear in the dropdown box, but for this program, there is only need to use three of them. The GPS Position Window option opens the Geodetic DMS window. The GPS Active option opens the connection between ArcPad and the GPS unit. The GPS debug option helps to determine if there are any problems with the communication between ArcPad and the GPS unit. Each option acts as a toggle switch. Tap on it once to turn it on and again to turn it off.



2. Tap the GPS Active option. ArcPad will try to connect to the GPS unit. If it is successful, a crosshair will appear in your location. If ArcPad is unsuccessful, you will be alerted that ArcPad could not establish a connection.



3. If a connection could not be established, then you will need to use the GPS Debug option. With the GPS Active option still turned on, tap the GPS icon dropdown box, then the GPS Debug option.
4. If the connection between the two devices is working, you should get the black screen with lots of scrolling green text (shown below). If the connection is not working, then the screen will just be black. If this is the case, please consult the Installation Guide to be sure that the devices are set up properly.

5. When you are done testing the connection, turn off the GPS debug by tapping the GPS dropdown box, and then tap the GPS Debug option again.

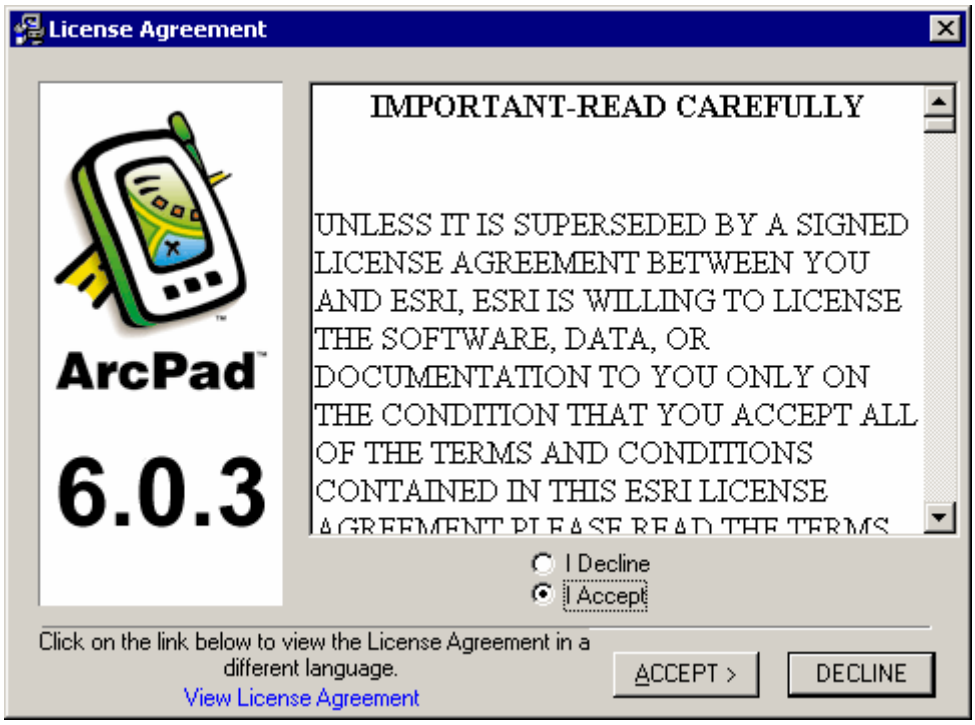
6. To deactivate the GPS connection, tap the GPS dropdown box and tap GPS Active. The crosshair will then disappear.

Appendix IV

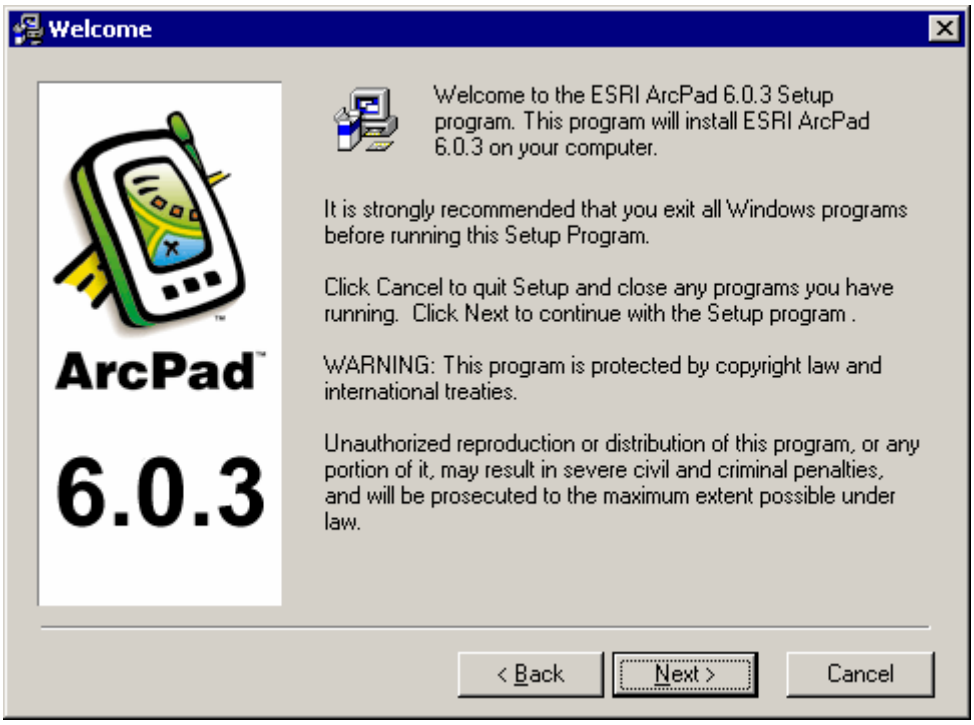
Installing ArcPad 6.0.3

ArcPad 6.0.3 (PC Install)

1. Go to http://www.esri.com/software/arcgis/arcpad/download.html and download an evaluation copy of ArcPad 6 (arcpad6_setup.exe) to your computer. Please note this location.
2. Close all applications on your desktop computer.
3. Navigate to the location of the ArcPad 6.0.3 Installation program and double-click on setup.exe.
4. Read the ArcPad 6.0.3 License Agreement. If you agree, select the "I Accept" radio button and click the Accept button.



5. At the Welcome screen, click Next.



6. At the Read Me File screen, click Next.

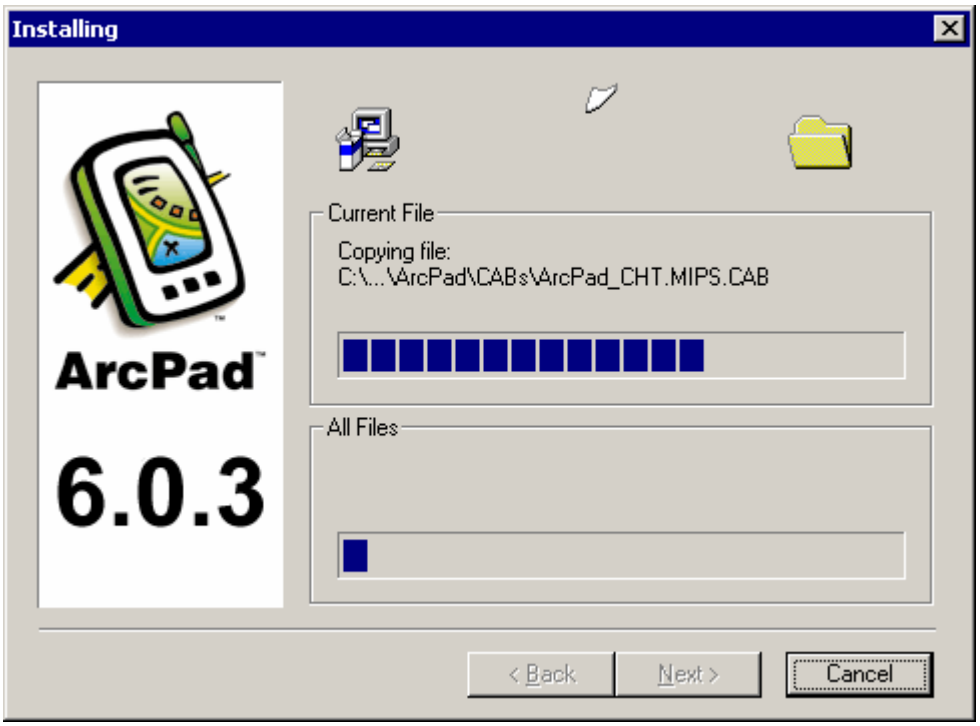
7. Select the location where ArcPad 6 is to be installed. It is recommended that you use the default location, unless otherwise directed by your computer systems personnel. Click Next.

8. At the Select Components screen, you will need to make some choices depending on the software installed on your system.
    a. If your machine's operating system is Windows 95, Windows 98, or Windows ME, then check the ArcPad for Windows 9x Technology option and leave the ArcPad for Windows NT Technology option unchecked. If your operating system is NT, 2000, or XP, then choose the ArcPad for Windows NT Technology and leave the ArcPad for Windows 9x Technology option unchecked.
    b. Select the ArcPad Font option.
    c. If you have ArcView 3.x installed, you can check this option.
    d. If you have ArcGIS 8.x installed, you can check this option.
    e. Check the ArcPad Sample Data option.
    f. Check the Coordinate System PRJ Files option.
    g. Check the ArcPad for Windows CE option.
    h. Check the ArcPad Font for Windows CE option.
    i. Check the ArcPad Sample Data for Windows CE option.
    j. Check the VBScript Runtime Library for Windows CE option.
    k. Click Next.

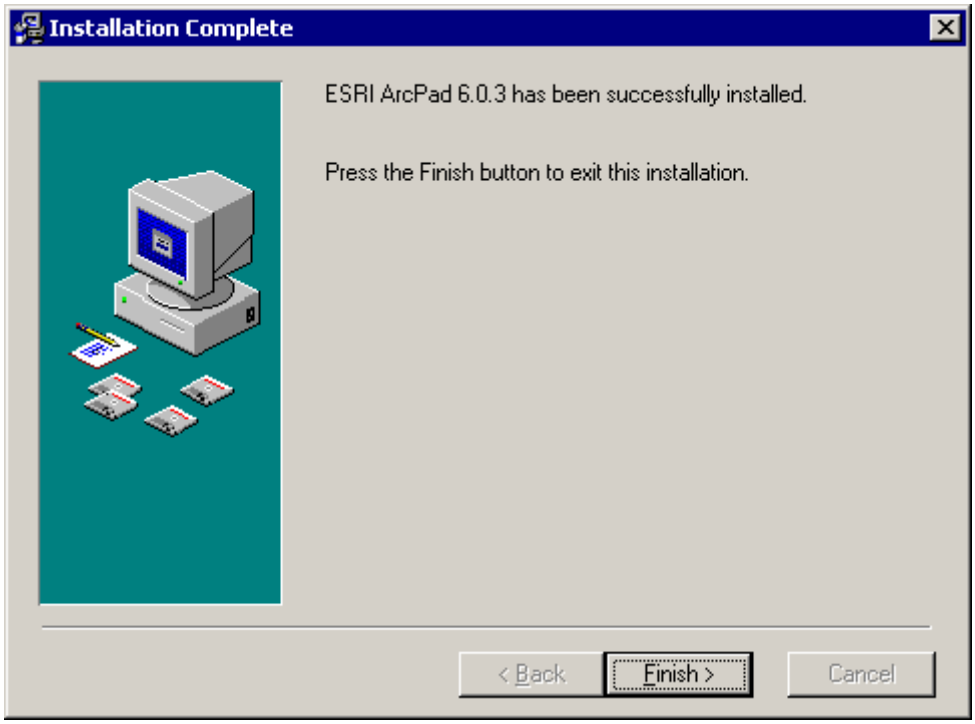
9. At the Select Program Manager Group screen, click Next.

10. At the Start Installation screen, click Next. ArcPad 6 will start copying the files to your system.

11. The program files will start copying to your desktop computer.



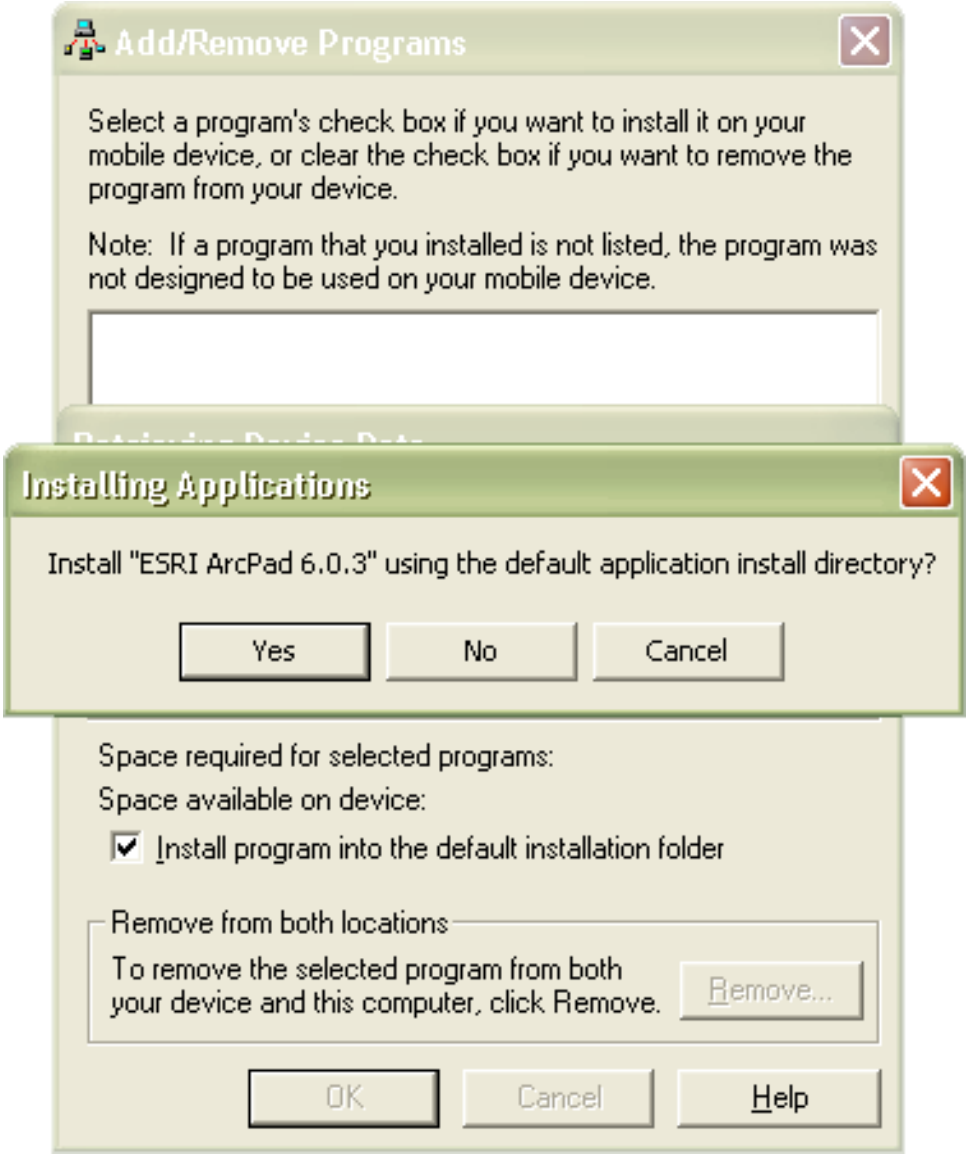
12. At the Installation Complete screen, Click Finish.



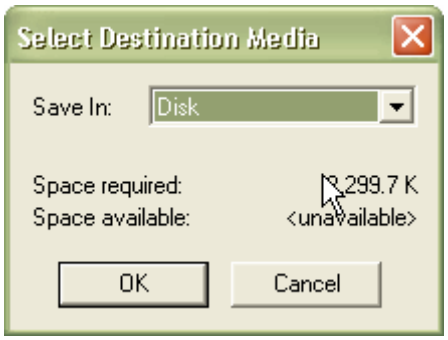
13. ArcPad 6.0 is now installed on your PC.

ArcPad 6.0.3 Application (Installation on the Trimble Unit)

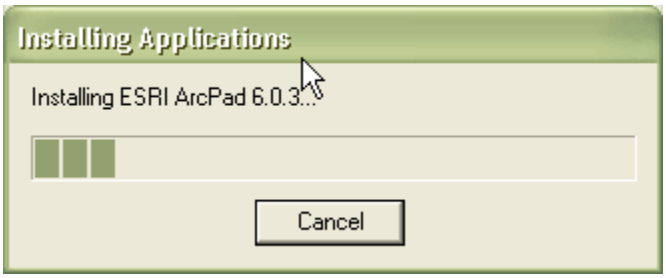
1. Start an ActiveSync connection between your desktop PC and Windows CE computer. You can connect with or without a partnership.
2. On your desktop PC, click Start > Programs > ArcGIS > ArcPad > Install ArcPad 6.0.3.
3. On your desktop PC, the Add/Remove Program window will appear. An Installing Applications dialog box will appear, click No to install ArcPad to its default directory.



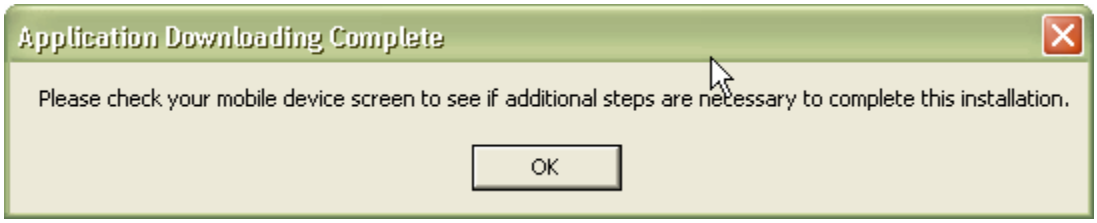
4. A Select Destination Media window will appear. Select "Disk" from the Save In dropdown box.



5. A new window will appear on your desktop PC. This window shows the status of the file transfer between your desktop PC and your handheld unit.

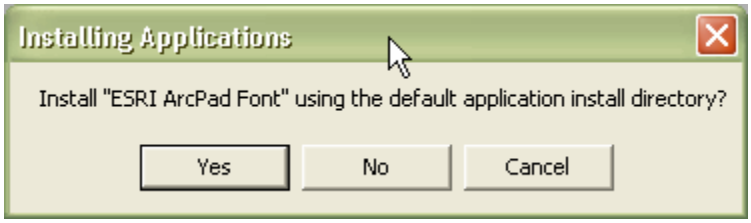


6. The Application Downloading Complete screen will appear. You will see a window with a status bar appear on your handheld unit. The ArcPad files are being copied to your handheld unit.
7. Click the OK button on the Application Downloading Complete window, on your desktop PC.

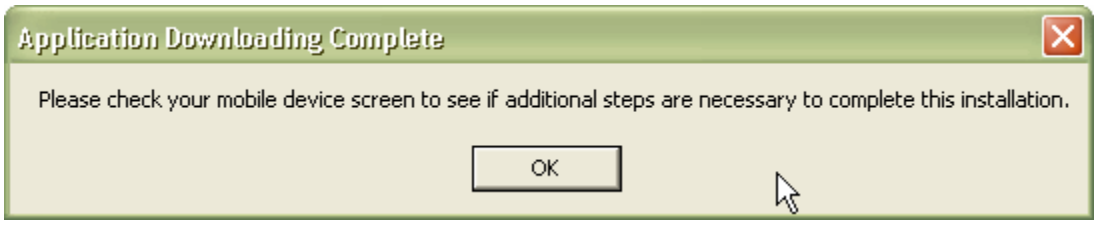


ArcPad 6.0 Font (Installation on the Trimble Unit)

1. On your desktop PC, click Start > Programs > ArcGIS > ArcPad > Install ArcPad Font for Windows CE.
2. On your desktop PC, the Add/Remove Program window will appear. An Installing Applications dialog box will appear, click Yes to install the ESRI ArcPad Font.



3. The Application Downloading Complete screen will appear. You may see a window with a status bar appear on your handheld unit (Note: This process may happen fast and you may not see the window). The ArcPad font is being copied to your handheld unit.
4. Click the OK button on the Application Downloading Complete window, on your desktop PC.

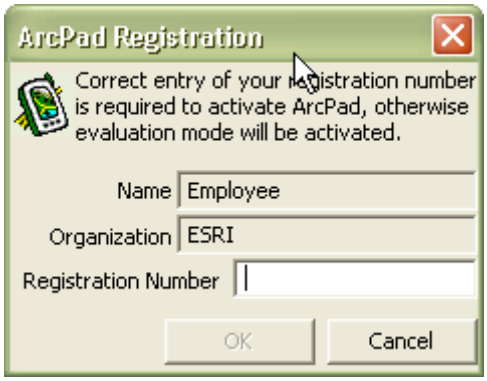


Entering your registration number

Entering a valid ArcPad registration number disables the evaluation mode time-out.

To enter your registration number:

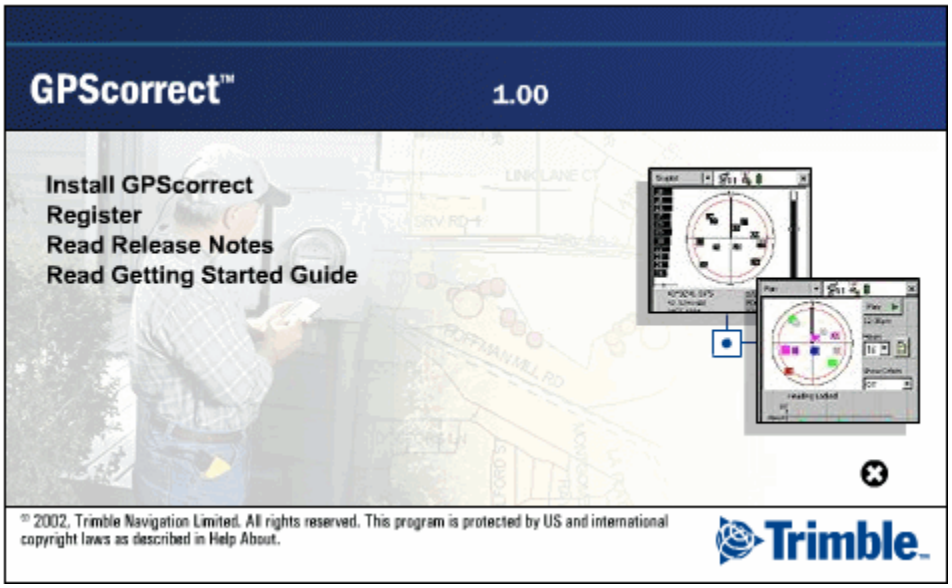
1. On your handheld unit, tap on the Start button located in the upper-left corner of the screen. A drop-down menu will appear, tap on ArcPad 6.0.3.
2. Type your registration number in the Registration dialog box and tap OK.



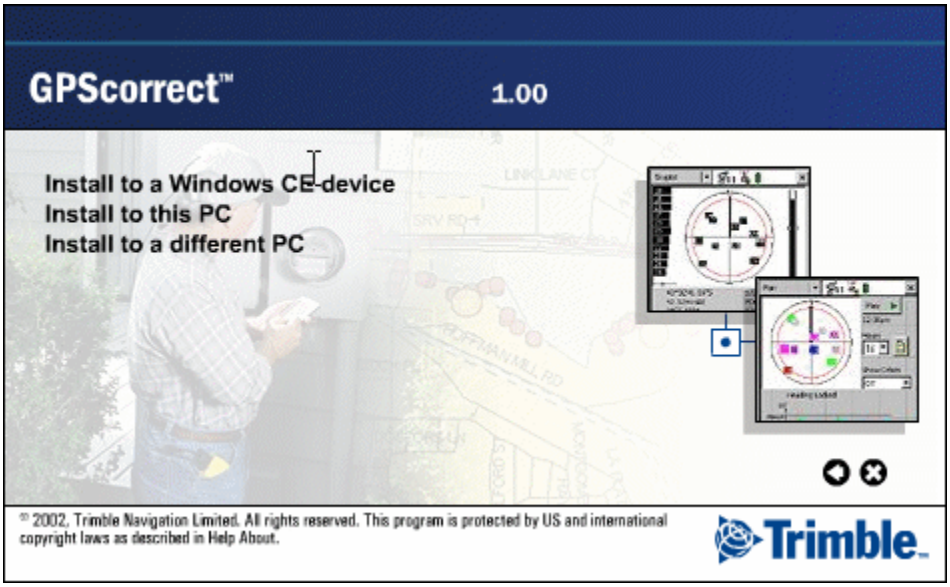
Install Trimble GPSCorrect

ArcPad 6.0.3 must be installed before installing GPSCorrect. For detailed information on Trimble GPSCorrect and ArcPad, please see the Trimble document at: http://trl.trimble.com/docushare/dsweb/Get/Document-28053/GPScorrectGSG.pdf

1. Start an ActiveSync connection between your desktop PC and Trimble handheld device. You can connect with or without a partnership.
2. If ArcPad 6.0.3 is open on the Trimble device, close the application.
3. Insert the GPSCorrect CD-ROM in the CD drive of your desktop computer. The main setup screen appears. If this screen does not appear, select setup.exe from your CD drive folder.
4. Select Install GPSCorrect.



5. Select Install to a Windows CE device. The GPSCorrect installation wizard appears.



6. Follow the instructions on the screen to install the GPSCorrect extension. You will need to enter your GPSCorrect serial number and authorization key (displayed on the CD case).

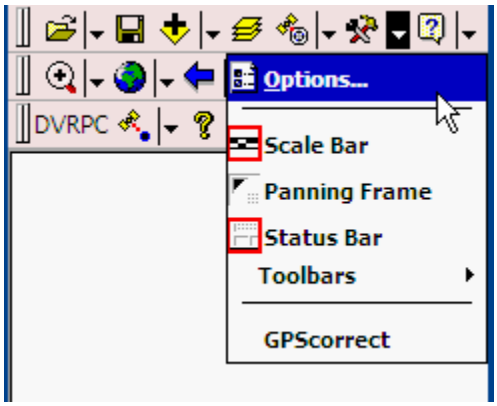
7. When the message Install "GPSCorrect" using the default application install directory? appears. Click No to install the software on the Disk storage location. The Select Destination Media dialog appears.
8. From the Save In list, select Disk, and then click OK to proceed with the installation.

9. The setup program will begin copying files to the Trimble device. A notification window will appear when the installation is complete.

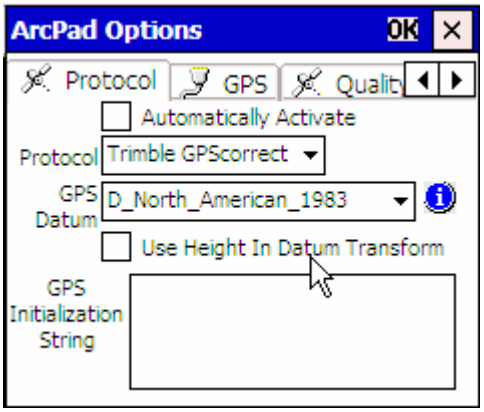
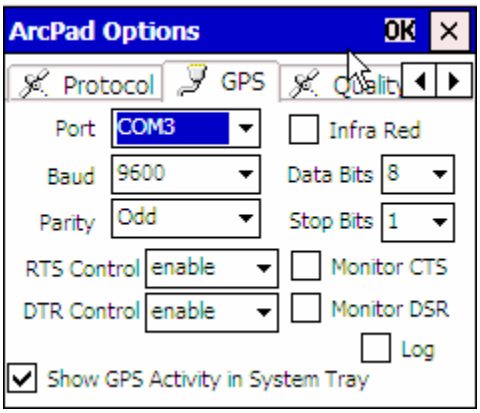
Configure Trimble GPSCorrect with ArcPad

The GPS unit will need to be configured to work with ArcPad 6.0.3.

1. On the taskbar, tap the Start Button and then select ArcPad 6.0.3.
2. In ArcPad, tap the Options button. The Options dialog appears.



3. Select the Protocol tab.
4. From the Protocol dropdown box, select "Trimble GPSCorrect".
5. Check the Automatically Activate check box.



6. Select the GPS tab.
7. In the Port field, select the port that your GPS receiver is connected on (usually COM 3).
8. Tap OK.