

ArcPad 8 - How to Collect and Edit Data Points in the Field with a GPS

Add a Satellite Image or Shapefile as a Base Layer for GPS Data Collection

The GPS unit creates latitude and longitude points in a blank layer file. Adding a satellite image, shape file, or contour image can provide visual context for longitude/latitude readings you take with the GPS unit, so that you can relate your own position in the landscape to the latitude/longitude points you record.

ArcPad automatically opens to the **Open Map** window. To add a new satellite image or map layer, close the **Open Map** window by clicking on the red X at the bottom of the screen. This will take you to the main **ArcPad** screen.

1. Tap on the Add Layer pull down menu - it looks like a yellow piece of paper with a green plus sign at the bottom.
2. Tap Add Layer
3. In the list of file locations, choose the location in which your satellite image or map layer is stored. When you tap on a storage location, all the files stored in that location will appear in a list with red check marks next to them.
4. Uncheck all but the files you want to add to your ArcPad map.
5. Tap **OK** in the bottom, left hand side of the screen.
6. If you have not set a **Projection** for the map layer or satellite photo, **ArcPad** will ask you if you want to assume the **Projection** is **GCS_WGS_1984**. Tap **Yes**. Depending upon the size of the map file, it may take a while to load.

Collect New Data in ArcPad 8

Use these directions if you want to collect GPS data in a new map layer.

Create a New Shapefile Layer in ArcPad 8 for GPS Data

1. ArcPad stores your GPS data in layers that you add to a map. The type of layer that you create for your GPS data points is called a **Shapefile**. If you are going to capture new GPS data, you must do so by first creating a new **Shapefile** layer in **ArcPad**.
2. With **ArcPad** open, click on the **GPS device** icon just below the **Windows** icon.
3. Tap **New -> Shapefile**
4. To collect **GPS latitude/longitude** data, the **Type** should be set to Point.
5. **Code Page** should be set to Unicode **UTF-8**
6. Add **Attribute Fields**. Each shape file has underlying data associated with it. These data are called **Attributes**. If, for instance, you are collecting GPS data to go with artifacts you are collecting, you might want to add data fields to include information such as who collected the artifact/GPS coordinate, the date of collection, the type of artifact, the site name, etc.. You can add new fields by hand that will become **Attribute** fields in your **Shapefile**. OR if you have a data file from another project that has the fields you want to use, you can import it. To import a file, you must save it as a .dbf file and upload it to the GPS unit using **ActiveSync**. When you are done adding or importing fields, click **OK**.
7. **Name** your document, choose a folder for it, and choose whether or not you want to save it to the Main Memory or the **SD (SDHC) Card**. Saving to the **SD card** allows you to bypass the use of **ActiveSync** and plug the **SD card** into a card reader that can be used by your computer to directly download the file from the GPS unit.
8. Save your new Map file by clicking on the Open Map icon (it looks like a yellow file folder with an arrow above it), and tap Save Map As

Collect Longitude/Latitude Data in a Shapefile Layer

Activate GPS Connection

1. Make sure that you have the proper Shapefile open in ArcPad.
2. Tap on the Main Tool Bar. Its icon looks like a yellow file folder.
3. Tap on the GPS Active drop down list. It looks like a satellite.
4. Tap on the GPS Active option. This will activate communication between the GPS unit and any available satellites.

You will first see GPS OFF in the bottom of the display window. This will be quickly followed by a NO FIX message in red at the bottom of the display. This is perfectly normal while the GPS unit and satellite(s) communicate and locate your position. A pop up window will appear periodically during this time that says No Current Position Fix Available. Simply Dismiss this message. If you are opening a connection to satellites in a new location, it can take quite a long time for the satellite(s) to get a fix on your position. Be patient - it can take up to 15 or 20 minutes depending upon the number of available satellites over the area.

When a longitude and latitude reading appears in black at the bottom of your screen, you will know that the satellite(s) have fixed your position. It is not uncommon to lose a position fix if you accidentally cover up the antenna on the GPS unit, or if there are objects like trees or heavy cloud cover between you and the satellite(s). It is also normal for the GPS to lose a fix on your position whenever you move to a new area.

Navigate Through a Shapefile Layer

Sometimes you will want to zoom in to a particular area on your base layer or move the view of the base layer to view your current position.

1. Tap the **Browse toolbar**. Its icon looks like the Earth with a hand hovering over it.
2. To **Zoom In**, tap the **Zoom In** icon, which looks like a magnifying glass with a plus sign in it. Tap on the corner of the area you want to **Zoom In** on, and drag the stylus to create a square around the desired area. If you made a mistake in **Zooming In**, you can use the **Go Back to Previous Extent** function (the blue arrow) to undo your zoom.
3. To **Pan** through a map, click on the hand icon above the **Browse** menu in the upper, right hand corner of your map layer. Tap and drag the map layer to move around. You will have to tap the **Pan** icon each time you lift the stylus off of the display area.

4. **Zoom to Full Extent** (the Earth - no hand) - this function takes you out to the full view of the map, completely unZoomed.

Add Longitude and Latitude Points to the Shapefile layer

1. Tap on the **Edit toolbar**. This looks like a pencil with a bunch of points connected by lines.
2. Tap the **Draw tool** Icon (pencil) to highlight it.
3. Tap the **Point feature** icon to highlight it. Make sure that the chosen type is **Point** if you are collecting GPS latitude/longitude coordinates. Both the **Draw tool** and the **Point feature** must be highlighted to record lat/long coordinates.
4. Find your **Current Location** on the map layer. It will be marked by a red circle with a dot in the middle. If you are not standing in the location of the latitude/longitude coordinates you want to record, move to that location.
5. Tap in the center of the **Current Location** indicator. The **Data** window will open, with empty fields for all of your **Data Attributes**. Fill in as many of these as you need to capture the data for your coordinates.
6. When finished recording **Attribute** data for the latitude/longitude coordinates, tap **OK** in the bottom, left hand corner. Your GPS latitude/longitude point will now appear in your **Shapefile** layer.

When you are done collecting coordinate points, click the **Open Map** icon (an open, yellow folder with an arrow), and tap **Save Map**. This will save your **Shapefile** layer and **Base** layer together as a map document that can be opened and added to later. You can export individual layers or the entire map document to any laptop by using the **SDHC card** (if that's where you've saved your layers and map) or **ActiveSync**. ArcMap - the GIS software used on the desktop computers - will not open an **ArcPad** map document, but it will import **Layer** files created in **ArcPad**.

Open/Work with an Existing Map Document or Layer

1. In the **Open Map** window of **ArcPad**, click on the open folder icon at the bottom of the screen.
2. The **Folder** option should be set to **All Folders**
3. Set the **Type** option to **All Files (.*)**. All of the files loaded onto the GPS unit, including those stored on the **SDHC card** should appear.
4. Choose the file you want to use as your **Base layer**, or the **Shapefile** or **ArcPad** map you want to work with.
5. If you have not set a **Projection** for the **Base layer** or **satellite photo**, **ArcPad** will ask you if you want to assume the **Projection** is **GCS_WGS_1984**. Tap **Yes**. Depending upon the size of the map file, it may take a while to load.
6. Continue adding data.

Edit Attributes of Features (Data Points) in a Map Document or Layer

Attributes are the fields into which you enter data about a Feature/Data Point. **Attributes** are the metadata about a **Feature/Data Point**, and describe all the information you want to collect about a it. Examples of **Attributes** for a **Feature** might be LocationName, BuildingType, etc.. Once you've created a **Map Layer** in ArcPad 8, you can edit the content of **Attributes** when you are in the field. If you need to add or subtract fields in a **Map Document** or **Map Layer** in ArcPad, you will have to use the desktop version of the software.

Start and Editing Session and Edit Attributes

1. Navigate to the **Edit toolbar** by tapping on the tab at the top of the ArcPad menus that looks like a pencil and some dots connected with lines.
2. Tap on the **Start/Stop Editing** button, which looks like a pencil. A list of the **Shapefiles** and other **Map Layers** you're working with will appear.
3. From the pull-down menu, choose the **Map Layer** in which you want to edit the content of the **Attribute** fields.
4. Tap on the **Select** button, which looks like a blue arrow. Both the **Start/Stop Editing** and **Select** buttons should be highlighted.
5. Select the **Feature** whose attribute field content you want to edit by double-tapping on it. The **Edit Attributes** screen should appear, and the **Attribute** fields for this **Feature** should display.
6. Change the information in each of the fields you want to edit. If the **Keyboard** disappears and you need to get it back, tap the **Keyboard** icon in the lower, right-hand side of the **Edit Attributes** screen.
7. When you are finished, click OK.

End the Editing Session

1. You will be able to edit multiple Attributes for multiple Features (data points). Once you are finished editing, you must close our your editing session.
2. Tap on the Start/Stop Editing button. Tap on the **Start/Stop Editing** button, which looks like a pencil. A list of the **Shapefiles** and other **Map Layers** you're working with will appear, with the Map Layer you've been editing highlighted with a red outline.
3. Tap on the name of the Map Layer you've been editing to deselect it. The pull down menu will disappear and the **Start/Stop Editing** and **Select** buttons should no longer be highlighted.