



# **Professional Data Mapper**



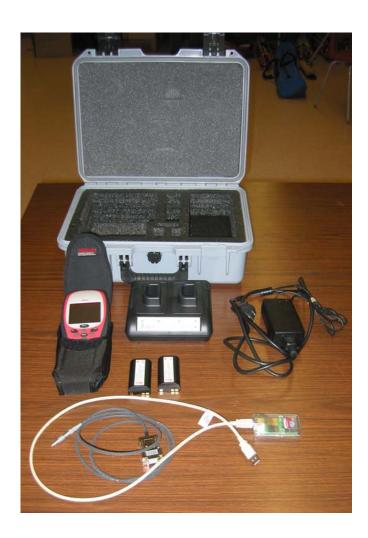
Ted MacKinnon Jonathan Murphy AGRG 2003

# Contents

Equipment List	3
Office Preparation	4
Codelist Manager	5
Importing A Codelist to the GS20	10
Importing Way Points to the GS20	13
GS20 Operation	18
Importing Data from the GS20 to PC	26
References	31

# **Equipment List**

- GS20 PDM GPS unit
- Soft Protective Pouch
- 2 Batteries
- Battery Charger and transformer
- Bluetooth Dongle
- USB and serial cables
- Carrying Case



# **Office Preparation**

- Ensure that your batteries are fully charged.
- Plan your survey.
  - Know what type of data you plan to collect
  - Check the GPS Almanac to ensure you will have good Satellite Coverage
  - Gather all relevant materials for the project, Air Photos, Imagery, Topographic base maps, etc (optional)
- Create your Codelist (optional)



# **Codelist Manager**

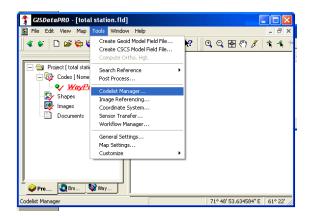
#### **Overview**

- 1. Create a new Codelist in GISDataPro
- 2. Create Codes
- 3. Create Attributes
- 4. Assign Symbology to your codes
- 5. Save Codelists
- 6. Transfer Codelist to GS20

Codelists are used to help describe the data features that you collect GPS data for, in the field. Leica GISDataPro software package is used to create or edit codelists for use with the GIS20.

- Open the GISDataPro program.
- Create or open an existing Project File, by selecting New or Open from File in the Main Menu. Give your New Project a name, select a Coordinate System, and set the Sensor Type to GS20. Set the codelist selection to none (only when you plan on creating your own), or select an existing codelist. Press OK.
- Select the **TOOLS** menu from the Main Menu, and then choose Codelist Manager.





Eile <u>V</u> iew <u>C</u> odelist	Code Attrib	utes <u>H</u> elp		- 8
- 🚰 agrg - 🚰 Enviro		Codelist	Author	Modified
Enviro2	8	agig	w0005724	10/29/2003 14:04:34
- 🔁 Forestry		Enviro	Christina Li	05/09/2002 14:37:28
E None		Enviro2	w0005724	10/29/2003 14:15:27
- 🚰 Urban - 🚰 Utility		Forestry	Christina Li	05/09/2002 14:37:30
<li>Carty</li>	1	None	Christina Li	05/09/2002 14:37:31
	1	Urban	JSchecht	12/03/2001 10:31:56
	1	Utility	Christina Li	05/09/2002 14:37:33
	1			

Your window should switch from the Main GISDataPro window to the Codelist Manager window.

- Choose Codelist from the Main menu and then select New Codelist
- Enter a Codelist Name and Author. Click OK

New Codelist	? 🛛
General Extended	
<u>C</u> odelist Name:	
agrg	
<u>A</u> uthor:	
w0005724	1
	OK Cancel

• Your new Codelist file is now created and will be highlighted in the list of Codelists in the left hand frame of the Codelist window.

😚 GISDataPRO - [Codelis	t Manager]		
📜 Eile <u>V</u> iew <u>C</u> odelist C <u>o</u> de	<u>A</u> ttributes <u>H</u> elp		_ @ ×
	Code \$국 Waypoint \$국	Description	Type Point ▼ ▼
l For Help, press F1	,		

Note: When a new codelist is created the first code will always be Waypoint by default and can not be changed.

• Your new Codelist file is now created and will be highlighted in the list of Codelists in the left hand frame of the Codelist window.

😚 GISDataPRO - [Codeli	st Manager]		
🐮 Eile <u>V</u> iew <u>C</u> odelist C <u>o</u> de	e <u>A</u> ttributes <u>H</u> elp		_ 8 ×
<ul> <li>♥ ■ agrg</li> <li>♥ ₽ Enviro</li> <li>♥ ₽ Enviro2</li> <li>♥ Forestry</li> <li>♥ 0 None</li> <li>♥ Urban</li> <li>♥ Utility</li> <li>♥ ■ agrg2</li> </ul>	Code	Description	Type Point -
For Help, press F1			//

Note: When a new codelist is created the first code will always be Waypoint by default and can not be changed.

- To add new codes select **New Code** from the **Code** pull down menu. (Or right click on the right hand side of the window and select **New**)
- Enter your new Code Name, Feature Type and a Description, and select Ok.
- Continue adding the rest of your codes.

New Code	? 🛛
<u>C</u> ode: Road <u>D</u> escription:	Iype:
Road	
	OK Cancel

Each new code will then appear in your list of codes of the Codelist Window after it is created.

<u> File View C</u> odelist C <u>o</u> d	de <u>A</u> ttributes <u>H</u> elp			- 6
- 🚰 Enviro - 🚝 Forestry	Code	Description	Тур	е
None	😪 Waypoint		Point	-
📲 Urban	😪 Road	Road	Line	-
- 📒 Utility	😪 Trail	Trail	Line	-
- 📒 agro 🕀 - 😪 Waypoint	😪 Rock		Point	-
Road	😪 Water		Point	-
😤 Trail	₩ater2		Line	-
Rock	😪 HPN		Point	-
▶ ♥ ₩ater ▶ ₩ater2	😪 Sign		Point	-
Pa Waterz	• <u></u>			-

- To add Attributes to a Code, highlight the code in the left hand frame of the Codelist Window, then choose New Attribute from the Attribute Menu, (Or right click in the right hand side of the window and select New)
- Add an Attribute Name, then select properties such as Attribute Type, Value Type, and Value Region.

If you select **Choice List** as the option for Value Region then an "Attribute Values" tab will appear and you then enter in the values for your list.

- You can set the display properties that the GS20 uses to display your features.
- Highlight your code from the left hand frame, then choose Set Display Attributes from the Code pull down menu. A new window will pop up allowing you to change the symbol properties of the code.
- Continue adding attributes for all your codes that you have in your codelist.
- Continue adding all the attributes to your codes and then save your Codelist by selecting **Save** from the main menu under **File.**

Select File, then Close to return to the main window.

Optional: You can also import **Codes** from an existing **Shapefile**.

Attribute Properties	? 🛛
General Attribute Values	
Attribute Name:	
Туре	
Attribute <u>T</u> ype: Mandatory	Value Type: Text ▼
Value <u>R</u> egion:	Default Value:
Choice List	None
	OK Cancel

Attribute Properties	? 🗙
General Attribute Values	
Choice List: <u>m</u> ★ ★ Payment Dirt	
OK (	Cancel

agrg - Tree		? 🛛	<
Display Symbol Eont:	ESRI US Forestry 2		
<u>S</u> tyle: <u>C</u> olor: Sjze: <u>R</u> otation:	106 ÷	Symbol Preview	
		OK Cancel	

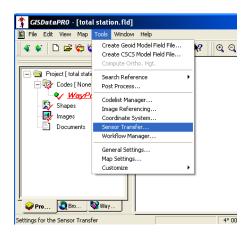
1	) Ъ	File	View			Manager Attributes	Help			
	+	Sa	ave			Ctrl+S		Code		Des
1	+ +		ару Со	delist/Cod	e		)t			
	÷	In	nport C	odelist fro	m IDEX.				Road	
1	+ 			ode from :		9			Trail	
	E	E:	(port C	odelist to	IDEX					
		Pa	age Sel	tup						
			rint			Ctrl+P				
		Pt	rint Set	up			_[			
1		C	lose			Ctrl+E				
			🖁 Wat			Pree Tree				
						👷 03M	ay02_			
			뿝 Sign 뿝 Tree			<b>♦</b> ₽				
				, lay02_rtk						
4										
÷										

Import a code definition from shape file

<u>File View C</u> odelist C <u>o</u> de	Attrib	utes <u>H</u> elp		_					-
Enviro Forestry		Attribute Name	Attribute Ty	pe	Value Type		Value Region	Attribute Values	Default Val
None .		POINT_ID	Normal	•	Text 👻	•	None 👻		None
💾 Urban		EASTING	Normal	-	Real 👻		None 👻		0
💾 Utility		NORTHING	Normal	•	Real 🗸		None 👻		0
📒 agrg 🗄 📲 Waypoint		ORTH_HEIGH	Normal	-	Real 🗸		None 👻		0
E Road		GEOID_SEP	Normal	-	Real 🗸		None 👻		0
🕂 🔁 Trail		STD_DEVIAT	Normal	•	Real 🗸		None 👻		0
Pa Rock		STD_DEVI_1	Normal	-	Real 👻		None 👻		0
· 영문 Water 영문 Water2		STD_DEVI_2	Normal	-	Real 🗸		None 👻		0
Water2		TIME	Normal	-	Text 🗸		None 👻		None
Sign		OID_	Normal	•	Integer 🗸		None 👻		0
Tree		POINT_ID_1	Normal	-	Text 👻		None 👻		None
🖃 😪 03May02_rtk		DATE_	Normal	-	Text 👻		None 👻		None
🗄 🐕 03apr30_rtk		LOCATION	Normal	-	Text 👻		None 👻		None
		GROUND_COV	Normal	-	Text 👻	•	None 👻		None
		WETNESS	Normal	•	Text 👻		None 👻		None
		HEIGHT_GPS	Normal	-	Text 👻		None 👻		None
		HEIGHT_N	Normal	-	Text 👻		None 👻		None
		HEIGHT_E	Normal	•	Text 👻		None 👻		None
		HEIGHT_S	Normal	-	Text 👻		None 👻		None
		HEIGHT_W	Normal	•	Text 👻		None 👻		None
		PHOTO	Normal	-	Text 👻	•	None 👻		None
		TEAM	Normal	•	Text 👻		None 👻		None
		SYSTEM	Normal	-	Text 👻		None 👻		None
		COMMENTS	Normal	-	Text 👻		None 👻		None
				•	-		-		

# **Importing A Codelist to the GS20**

- Open the GISDataPro Software package.
- Open the **Sensor Transfer** window from the **Tools Menu**.



Your window should switch from the Main window to the Sensor Transfer window.

🕇 GISDataPRO - [Sensor 🛾	Fransfer - GS20]
🍹 Eile Help	_ 8 ×
Location   Database  Projects  Coordinate Systems  Codelists  Codelist  Cod	Property     Value       Name     agrg       File Name     C:\Program Files\Leica Geosystems\GISDataPRO\Data\Codelists\a;       Last in use     10/29/2003 14:01:25
For Help, press F1	

- Connect the Serial Cable to your PC and to the GS20.
- Turn the GS20 on.



- From the main menu, select Auxiliary, press the Enter Key, then in the Auxiliary menu select Utilities, press the Enter Key and then from the Utilities menu, select Sensor Transfer, and press the Enter Key.
- Select 1 from the **Port** options, Highlight the **Apply** box and then press the Enter Key.



- Click the Database folder; in the left hand frame of the Sensor Transfer Window, click the Codelists folder, and then Highlight the Codelist you want to transfer in the left hand frame
- Right Click on the Codelist • you want to transfer and select Send To and Sensor **PC-Card**

Waiting	•	
Connect to Time: 4 sec Port: \\.\cc		
	( <u>C</u> ancel	

😚 GISDataPRO - [Sensor	Transfer - GS20]
🔁 File Help	
Location	Property Value
Database     Projects     Coordinate Systems     Godelists     Enviro2	Name agrg File Name C:\Program Files\Leica Geosyst Last in use 10/29/2003 14:01:25
Langue Send To	PC-Card Hard Disk
Configue Properties	Sensor PC-Card Sensor System
È C:	
	<u>&lt;</u>
For Help, press F1	

To check that your Codelist was uploaded successfully, go to the Codelist Menu and your new codelist should be included in the list of available codelists.

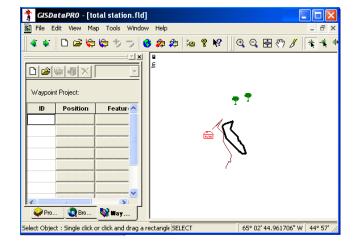
odelist Management (CLM Name GENERIC CDLIST01	*

# **Importing Way Points to GS20**

- Open the GISDataPro Software package.
- Select **Import File** from File in the main menu. Choose **ShapeFile** (\*.shp) for the file type, find your shapefile and then select **Import**.

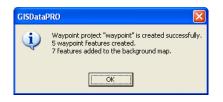
1	Import Data 🔹 🥐 🗙
ŀ	Look in: 🔁 LEICA 💽 🔶 📸 📰 -
2	S305imulator       Image: Newsletter       Image: ts         Overality       OWIdocuments       Image: MAN2003-0440         General       Image: Papers       Image: State Stat
	File name: Import
	Files of type: GPS Raw Data (*.o??) Cancel
	GPS Raw Data (*.o??) Shape File (*.shp)  Generate (*.integration file (*.integration f

- Choose the Waypoint Tab near the bottom of the left hand side frame of the window.
- Select all the features of the map that you want transferred by clicking the left mouse button and dragging a box over all the selected items.

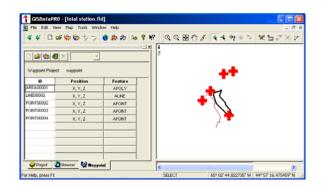


 Create a new Waypoint Project, by selecting the New Icon, and make sure that the Create Waypoints option is Only selected objects and the Create Background Map option is Include all features on the map. Then select OK.

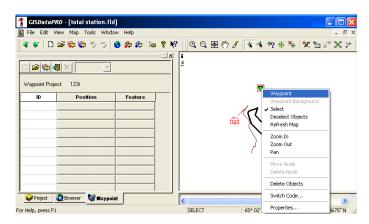
New Project	? 🛛			
Project Location Project Name: waypoint Path: C:\Program Files\Leica Geosystems\GISDataPRO\D Create Waypoints Create Waypoints Create Background Map Create Background Map V Include all features on the map				
Waypoint in this project:				
Waypoint	Path			
wayiunk	C:\Program Files\Leica Geosyst			
OK	Cancel			



• You should see a list of waypoints in the left hand frame and new symbols (waypoints) added to your map window.

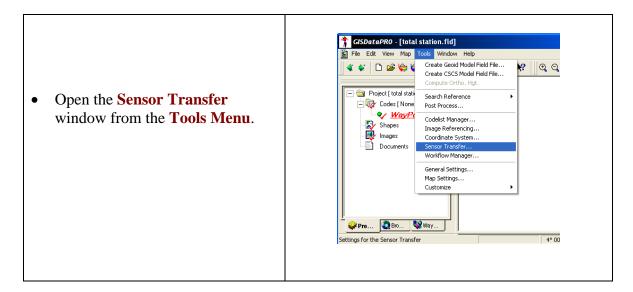


You can also just add a few select way points by right clicking on the point that you want as a waypoint and then selecting **Waypoint.** A new symbol should appear and then your waypoint feature will appear in the list to the left.

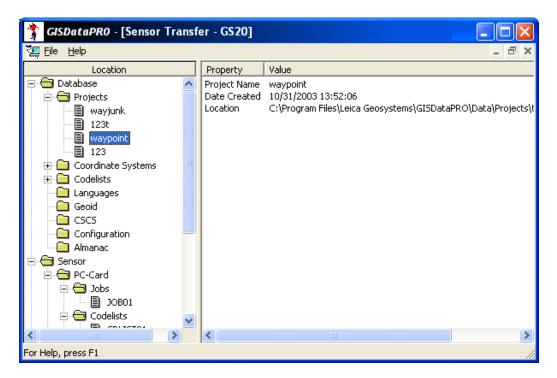


Now you can import the waypoint file into the GS20 with the Sensor Transfer option. From the **Tools Menu** select **Sensor Transfer, Database, Projects**, select your waypoint project, right click and send it to the sensor PC card. (Similar to Importing Codelist, page 10)

Now the new way point project can be opened in the GS20, and used as a reference.



Your window should switch from the Main window to the Sensor Transfer window.



- Connect the Serial Cable to your PC and to the GS20.
- Turn the GS20 on.



- From the main menu, select Auxiliary, press the Enter Key, then in the Auxiliary menu select Utilities, press the Enter Key and then from the Utilities menu, select Sensor Transfer, and press the Enter Key.
- Select 1 from the **Port** options, Highlight the **Apply** box and then press the Enter Key.



- Click the Database folder; in the left hand frame of the Sensor Transfer Window, click the Codelists folder, and then Highlight the Codelist you want to transfer in the left hand frame
- Right Click on the Codelist you want to transfer and select Send To and Sensor PC-Card

🕆 CISDataPRO - [Sensor Transfer - GS20]				
🏹 File Help			_ 8 ×	
Location		Property	Value	
Catabase     Catabase	~	Project Name Date Created Location	waypoint 10/31/2003 13:52:06 C:\Program Files\Leica Geosystems\GI5DataPRO\Data\Projects\I	
E Coord     Codel     Codel	Ha	-Card ard Disk ensor PC-Card	_	
Geoid CSCS Configuration Almanac	56	ensor System		
Sensor	>			
< >		<		
For Help, press F1			//	

Waiting 🔀
Connect to Sensor device. Time: 4 sec Port: \\.\com1 on .
(Cancel)

# **GS20** Operation

The Icon area at the top of the GS20 display provides constant access to important status data

- Autonomous Position
- H: 3.1m V: 4.0m 0% 100% Real-Time Position PDOP: 4.9

100%

- Quality and PDOP values
- Stop and Go Indicator K

 Identifies when a real-time auto stop position is complete

- Satellite Tracking Data Source
  - Mask Angle
  - Sats Visible / Sats Tracked
- W Real-Time WAAS Correction Status
  - WAAS (Wide Area Augmentation) Signal
- Compact Flash Status
- Battery Status and Local Time

Power: Power on and off the unit, and starts the backlight

- Press once to start. An audible beep will be followed by the splash screen, then the main menu.
- Press and hold for 3 seconds to power down the unit. A message will display "Powering Down and Saving Data"

## Alpha Numeric

- Press an alpha numeric multiple times, or hold to scroll through the characters available on that key.
  - To enter multiple characters from the same key, either right arrow, or wait for the time out. The time out can be specified in the Hardware settings.

## Enter and Escape

- Enter accepts a choice, or advances an action
- Escape functions as a "Back" key or a back space ٠ in an edit field









## Cursor Keys

- · In a Map view, arrows control the cursor.
- In a Menu or Table, Left functions as home and Right functions End.
- In an edit field, up functions as home and down as end.
- Check Boxes and Radio Buttons: Left and right toggle makes a field selection.
- Choice lists and spin controls: Left and right scroll selections

## Menu Button

- Menu once opens the context menu for the application
- Menu twice saves the current application open in a paging queue, and returns to the main menu
  - By returning to the main menu, via the menu button, it is possible to open several applications at once.

## **Page Button**

 The page button Pages through open application

## **Special Functions**

- 3 is Up:
  - Page Up in a table
  - Zoom Out out a Map
- 9 is Down
  - Page Down in a table
  - Zoom In on a Map
- Decimal key has special characters for edit fields
- Zero key also is the space button for edit fields



#### Enable Post Processing

5	Max Accuracy
•	Max Track

PDOP	Ŧ
10	-







- 1) Turn on the unit by pressing and releasing the Power Key, a beep will follow, then the Leica GS20 start up screen should appear, and then disappear and then you will be in the Main Menu. The Main Menu provides access to all of the applications and utilities of the unit. Press the Menu button twice to return to this menu at any time.
- 2) In order to collect Data, you must be receiving GPS signal, so ensure that the GPS Position Icon found in the left corner of the top icon bar is displayed. The symbol will change from an Autonomous Position Icon to the Real-Time Position Icon as your GPS signal improved. If there is no position available, check the number of satellites and the mask angle found in the center of the top icon bar to make sure you are tracking satellites.

$$\begin{array}{c|c} & H: 3.1m \\ & U: 4.0m \\ PDOP: 4.9 \end{array} \xrightarrow{\bullet} \begin{array}{c} & & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ \end{array} \begin{array}{c} & & & \\ & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & & \\ & & \\ & & &$$

(Make sure the unit is receiving GPS positions and WAAS (Wide Area Augumentation Signal) before you begin collecting data. The top icon bar will display this info for you. You should have at least 4 satellites showing under the GPS Signal Icon, have a good PDOP value displayed below the Real Time Icon, and the WAAS Real-Time Correction symbol (W Icon) should change from a hollow W (no signal received) to a solid W (no signal received) (arcs will appear below the W while it is changing).



3) Create a new job file or open an existing job file

### **Create a Job File**

- A) Select Data Collection from the Main Menu and press the Enter Key
- B) Select NEW, which will open the Data Collection window.
- C) Enter the a JOB NAME, Creator, and Manager
- D) Press the Menu Key, and then the Enter Key to save and continue
- E) The screen will then prompt you to open or create a codelist.
- F) Scroll down, select an existing codelist and press the Enter Key

#### **Open a Job File**

- A) Select Data Collection from the Main Menu and press the Enter Key
- B) Select OPEN, which will open the Data Collection window.
- C) Scroll down, select the existing job file and press the Enter Key
- 4) After the job is opened, you will be in the Data Collection Codes Screen, showing the Code ID, Note, and Type
- 5) Use the arrow key to scroll down and select the type of feature you want to record (line, point, polygon, or waypoint) and press the Enter Key. This will open the New Feature Attribution Screen.

## **Collect a Point**

A) While in the Data Collection Screen, scroll down and highlight **APOINT** and press Enter Key, this will open the New Feature Attribute Screen

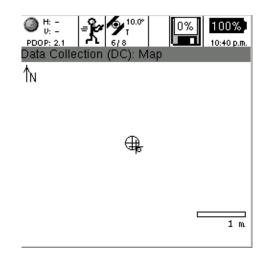
Data Collection (DC): Codes			
Code ID	Note	Tvpe 🔺	
ALINE		$\sim$	
APOINT		•	
APOLY			
		-	

B) Edit the Attributes for your point, give the point a Feature Name (optional) or use the default Feature Name, then scroll up to the Occupy Icon and then press the Enter Key to begin recording GPS positions and a Quality

Window will open, with info on the quality of the point. Highlight the Stop Icon and press the Enter Key to save the feature when the quality is acceptable.

V: -H PDOP: 0.0 DC[2]: New Feature	Attribution
Lat: 033.7771479°N Lon: Feature Code	118.151167#W
Feature Name	POINT00001
Attribute Name COMMENT	Value
Pos.: 13 (good) Avg	.: 13 Nodes:0

C) After the point is collected, a Map Display will appear, showing the feature you just collected and your GPS position.



D) To collect another feature, simply press the Enter Key to open the Data Collection Screen and repeat the above steps, or chose one of the other methods.

### **Collect a Line**

A) While in the Data Collection Screen, scroll down and highlight **ALINE** and press Enter Key, this will open the New Feature Attribute Screen

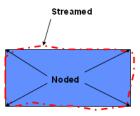
DC[2]: New Feature Stream mode	
Feature Code Feature Name	ALINE ~
Attribute Name COMMENT	Value
Pos.: 0 () Nodes:0	

B) There are two types of collecting lines, Stream or Node. The default type of line will be the last type used. If you need to change the type of line, press the **Menu button**, a menu, providing linear collection options. Select **Stream** or **Node**.

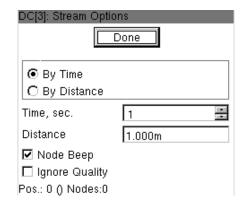
Save Featur	e
<u>2</u> Node	
🔿 <u>3</u> Stream	
<u>4</u> Offset	▶
<u>5</u> Nest	
<u>6</u> Map	
<u>8</u> More	▶
Main Menu	

**Stream Mode:** Automatically collects GPS positions by time or a specified distance.

**Node Mode**: Will collect vertices when you specify, similar to the method of collecting points.

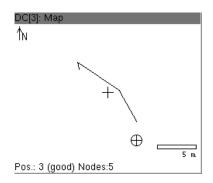


C) If you chose the Streaming method, a Stream Options window will open to allow you to select your options; Time (rate of positions) or Distance (distance between points), Node Beep, and an option to Ignore Quality.



After you have configured your settings scroll up to the Done Icon and press Enter Key or Esc Key.

- D) Edit the Attributes for your line, give the line a Feature Name (optional) or use the default Feature Name, then scroll up to the Occupy Icon and then press the Enter Key to begin recording GPS positions. The Occupy Icon will turn to a Stop Icon and the Quality Window will open, with info on the quality of the point. Start walking along your line feature, holding the unit in front of you, level and approximately at waist height. When you come to the end of your line feature, then scroll up and highlight the Done Icon and press the Enter Key, then press the Enter Key again to save the feature when the quality is acceptable. (If you want to collect points along your line, select the Stop Icon and press the Enter Key. Enter or select your attributes, highlight the Occupy Icon and then continue collecting your line.)
- E) After the Line is collected, the Map Display will appear, showing the line feature you just collected, your GPS position, and possibly features that you may have already collected.



F) The Node Mode of line collection is similar to streaming except that you must specify where each node is located, and then a straight line will be interpolated between them. Select the Occupy Icon to start recording GPS positions, and then press the Save Node icon to record the first position of your line. Continue this until you complete your line, then scroll over to the Done Icon to save your line.

DC[2]: New Feature	Attribution
Node mode Save	e Node Done
Lat: 033.7773160°N Lon:	118.1506408°W
Feature Code	ALINE 🔨 🔨
Feature Name	LINE00001
Attribute Name	Value 🔺
COMMENT	
	<b></b>
Pos.: 4 (good) Avg.:	4 Nodes:0

## **Collect a Polygon**

A) Collecting a polygon is similar to collecting a line feature, but you must close your polygon close to the point where you started.

## **Collect a Waypoint**

A) Collecting a way point is similar to the method of collecting a point.

To shut down the unit, press the **Power Button** and hold for 3 seconds.

# Importing Data from the GS20 to PC

- Open the GISDataPro Software package.
- Select Sensor Transfer from the Tools pull down Menu.

Create Geold Model Field File Create CSCS Model Field File Create CSCS Model Field File Compute Ortho. Hyt. Compute Ortho. Hyt. Compute Ortho. Hyt. Compute Ortho. Hyt. Search Reference Post Process Codelist Manager Image Referencing Coordinate System Sensor Transfer Workflow Manager General Settings Map Settings Map Settings	
Codes [ None WayP Codes [ None WayP Codes [ None WayP Codes [ None Codelist Manager Images Referencing Coordinate System Sensor Transfer Workflow Manager General Settings Map Settings	<b>?</b> ]⊕, 6
Codelist winager Shapes Image Referencing Coordinate System Documents System General Settings Map Settings	
Workflow Manager General Settings Map Settings	
Map Settings	
Customize	

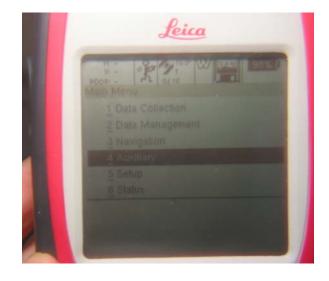
Your window should switch from the Main Window to a Sensor Transfer GS20 Window.

<mark>î GISDataPRO - [Sensor Č</mark> 🏣 <u>Fi</u> le <u>H</u> elp	Fransfer - GS20		_ <b>_ </b>
Location	Name BENTH EPING1 EPINGRT JUAN MAN2003 NEWRS Wells way_road	File Name           04402760.*           04402331.*           04402332.*           04402710.*           04402940.*           04402350.*           Wells.*           way_road.*	Creation Time/ 10/03/2003 12:. 08/21/2003 18:. 08/21/2003 18:. 09/28/2003 16:. 10/21/2003 22:. 08/23/2003 23:. 10/24/2003 11:. 07/22/2003 14:.

- Connect the Serial Cable to your PC and to the GS20.
- Turn the GS20 on.

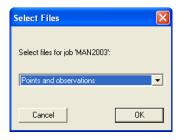


- From the main menu, select **Auxiliary**, press the Enter Key, then in the Auxiliary menu select **Utilities**, press the Enter Key and then from the **Utilities** menu, select **Sensor Transfer**, and press the Enter Key.
- Select 1 from the Port options, Highlight the Apply icon and then press the Enter Key.



- Right click on the Senor menu and choose Read the Contents
- Expand the Sensor folder by left clicking to expose sun folders
- Expand the PC-Card folder to expose sub folders
- A **Jobs** folder should appear in the left hand frame, when you click on the folder, all the job files will appear in the right hand frame
- Right Click on the Job you want to transfer to your PC and select Send To and Hard Disk... then select the location on your PC where you want to put your new files, and select OK.

🚏 GISDataPRO - [Sensor Transfer - GS20]				
🍹 File Help			_ @ ×	
Location	Name BENTH EPING1 EPINGRT JUAN MANDORC Send To We Save As	File Name 04402760.* 04402331.* 04402332.* 0440232.* 0440232.* 04402710.* PC-Card Hard Disk Sensor Internal Sensor Internal Sensor PC-Card Sensor System	Creation Time/ 10/03/2003 12:. 08/21/2003 18:. 09/28/2003 16:. 10/21/2003 23:. 10/24/2003 23:. 10/24/2003 11:. 07/22/2003 14:.	
<	<		>	
For Help, press F1			1.	



Downloading File from Sensor	
File: 04402940.004	
	Cancel

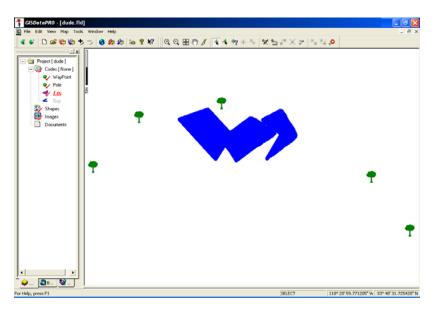
Select **Exit Sensor Transfer** from the **File** in Main Menu, and then your window should switch back to the main GISDataPro window where you can open your Job file. Select

**Import**, and then **File** from the main menu and find your GPS Raw Data file.

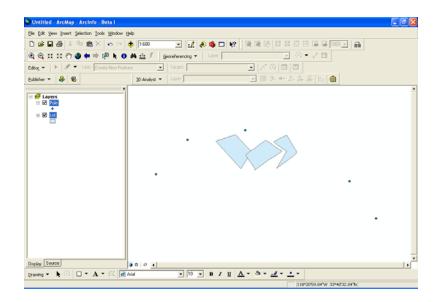
Note: Make sure that the "Generate GPS measurement database is selected in the Import Data window, this is necessary for post processing or computing orthometric heights.

1	GISDataPR0 - [total station	.fld]		K
8	File Edit View Map Tools W	Vindow	Help _ 2	×
	Next Step Previous Step		🎓   🍇 🤋 🕺 🗍 🤤 🤤 🥙 🖋 🔺	*
	New Open Close Delete Properties	Ctrl+N Ctrl+O Ctrl+C Ctrl+D		
	Import		File Ctrl+I	
	Export		Reference	
	Add File	Ctrl+A	Foreign Formats	
	Remove File	Ctrl+R	Code Ctrl+M	
	Print Print Setup	Ctrl+P		
ļ	1 total station.fld 2 C:\Program Files\\dude.fld 3 Manual-test.fld			
Imp	Exit		5° 23' 05.370000" W 35° 34'	1

Your GPS Data will be displayed in the right hand frame of your window.



You can now use your shapefile with other GIS applications like ArcMap



# References

Several images used were from Leica Geosystems website (Leica-geosystems.com) and basic system manuals included with the GPS unit.