

SOKKIA

IMap™

Reference Manual

Part Number 750-1-0052 Rev 2

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750-1-0052, Rev. 2 October 16, 2000

POINT, Inc.—Advanced Measurement Solutions from Sokkia and NovAtel

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IMap, a Windows[®] CE-based program, collects field data on points, lines and areas for GIS applications. This usually includes positions, attribute information, or both.

A point, by itself, consists of horizontal coordinates and an elevation. If you collected several points consisting of only coordinates and elevations, then later tried to work with those points in IMap PC or another GIS application, it would be very difficult to distinguish one point from another. Therefore, features and attributes are associated with points, lines and areas.

1.1 Understanding Features

Points are categorized using feature codes. The feature codes used for a project are stored in a feature file. Feature files can be custom-created or modified on the data collector. See Section 6.3, *Creating New Feature Files*, page 92 for more information.

Any feature file can be selected for a project. You can change to a different feature file in the middle of a particular project. If no feature file is selected for a project, the project is automatically given the following three general types of feature codes:

- Points**Features that consist of a single independent point, such as a tree, a utility pedestal, or a fire hydrant.
- Lines**Features that consist of two or more points that define a linear object, such as a fence or a sewer line.

Areas Features that consist of several points that define a two-dimensional object, such as a lake or a city lot.

- ☒ **Note:** Feature codes are alpha-numeric codes that describe the actual features. Features are identifiable points on a site that help make the collected coordinates easy to identify. Feature files are where feature codes and related information are stored.
-

Line and area features have more than one point associated with them. These features have a beginning and ending point. This means either a length or an area can be computed for that feature rather than just a single location.

When a feature contains more than one point, it must be ended sometime after the final point is collected. Before a feature ends, it is considered to be a feature in progress. You can collect points for any feature while another feature is still in progress. You can also use the same feature code for more than one feature in progress by starting each feature with a unique point name. IMap will then treat each feature code in progress as two independent features.

-
- ☒ **Note:** As an example, two separate fences could be logged simultaneously and share the same feature code “Fence” from the feature file as long as each fence is assigned a unique point name.
-

When logging points for a feature in progress, you should log the points in sequence. For example, if you log the first point along a fence, move down the length of the fence and log another point, you should not backtrack and log a new point from the direction that you started from. Doing so would result in an inaccurate fence length.

1.2 Understanding Attributes

Just as a features describe points, attributes are used to help describe features in more detail. Attributes are either typed in from the keyboard or selected from a pull-down menu. Attributes fall into the following three categories:

NumericA numeric attribute accepts only numbers from the data collector. These attributes can also be setup to accept numbers that reside in a specified range. Some examples of a numeric attribute would be the height of a tree or the number of ports on a utility pedestal.

Alphanumeric.....An alphanumeric attribute accepts any characters from the data collector's keypad or keyboard. An example of an alphanumeric attribute is an attribute titled "Notes." When using the notes attribute, you can type anything to describe a feature.

☒ **Note:** For specific information on using the keypad or keyboard on your data collector, consult the manufacturer's documentation.

Menu SelectionA menu selection attribute is an attribute selected from a menu. An example of a menu selection attribute would be an attribute titled **Condition** with a menu containing options for *Good*, *Average* and *Poor*.

When logging multiple points for a feature in progress, you are only prompted for the feature and attributes of the first point. All future points are automatically associated with the original feature and attributes selected.

As mentioned earlier, if no feature file is selected for a project, the project is automatically given a generic point, a generic line, and a generic area to choose from when logging points. Each of these features has one alphanumeric attribute associated with it titled “Comment,” which has a 40-character limit.

1.3 Understanding Zone Settings

The zone settings for a particular project allow the coordinates in that project to correctly align with the coordinates from another source, such as a map. As long as the coordinate system and datum used when creating the original source are known, the IMap project can be configured to match those in the original map.

☒ **Note:** Correct zone parameters are particularly important when attempting to navigate to a point whose coordinates were taken from another source. Navigating to a point using incorrect zone parameters can result in locating a point that is several meters away from the actual point.

1.4 Obtaining IMap Technical Assistance

When contacting customer support, please ensure the following information is available: your IMap version number and an accurate description of the problem.

Refer to the list below to contact your Sokkia subsidiary.

Canada

Sokkia Corp.
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Mississauga, Ontario
L4W 2X8
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1200 NW 78 Avenue
Suite 109
Miami, FL 33126
Phone +1(305) 599-4701
Fax +1(305) 599-4703

The procedure for installing IMap is similar to installing a Windows[®]-based application on your desktop computer.

To install IMap, you must have already installed the ActiveSync software that came with your Windows CE device. This software allows communication between the desktop and Windows CE computers.

☒ **Note:** Refer to the manufacturer's documentation that came with your Windows CE device/data collector for more information on the ActiveSync software and device communication.

Steps to Install IMap

1. With the ActiveSync software installed and running, connect your data collector to the desktop PC.
2. Insert the IMap compact disc into your computer's CD-ROM drive.
3. Click <**Install IMap**> on the opening screen. The program will prompt you to extract the installation files to the desktop computer before installing them on the data collector.
4. Click the <**Install**> button. You will be prompted for installation on the data collector's default directory.

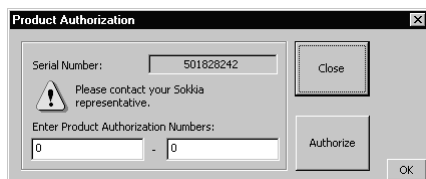
5. Click <Yes> to continue. The necessary files are then transferred to the \Program Files\IMap folder on the data collector. After a few minutes, you will be prompted to check your mobile device screen to confirm the program was installed successfully.

Confirming the Installation

Tap the <Start> button and select **Programs**. You should see IMap as one of the program options.

Starting IMap

You can start the program by selecting **Start | Programs | IMap**. If this is the first time you have launched the program, the **Product Authorization** dialog box will display.



-
- ☒ **Note:** When starting IMap for the first time after installation, you will be prompted for an authorization code (see example above). This code is required to launch the software. Make note of the serial number (which is also displayed after starting IMap) and contact your Sokkia distributor to obtain an authorization code. Reinstallations of IMap will also require an authorization code.
-

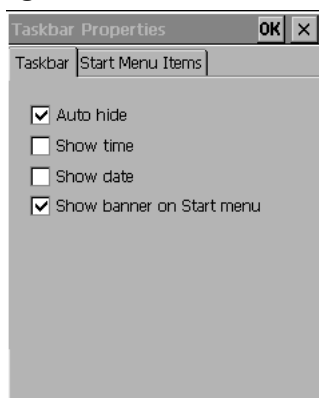
2.1 Viewing IMap Windows

Depending on the type of Windows CE device you are using, some elements of the IMap dialog boxes may, at times, be hidden by the Windows CE task bar.

If this is the case, you can change the settings on your display by following the steps below. Consult your Windows CE documentation if you need further assistance.

Steps to Hide the Windows CE Task Bar

1. Select **Start | Settings | Taskbar** to open the **Taskbar Properties** dialog.



2. Check the **Auto-Hide** Option
3. Tap <OK> to close the **Taskbar Properties** dialog.

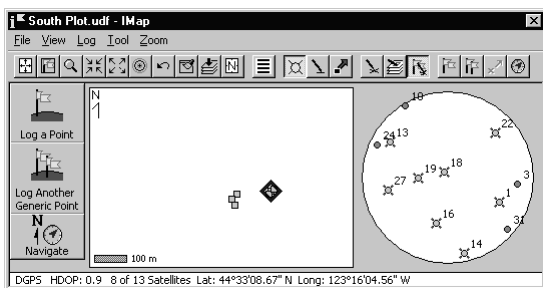
☒ **Note:** Selecting the **Auto-Hide** option will remove the taskbar from view on the Windows CE desktop. You can still access the taskbar by moving your stylus to the bottom of the screen on the Pocket PC.

2.1.1 Windows CE Configurations

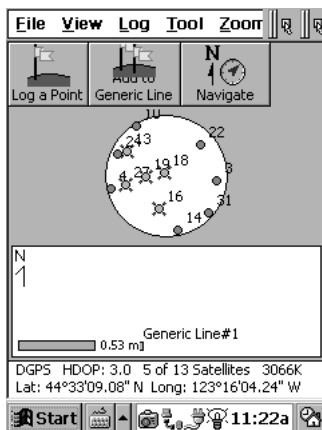
Currently, a wide variety of Windows CE devices are available. These devices differ in hardware configuration and screen appearance. For example, some include a keyboard and others include a “soft” keyboard.

Because of the difference in screen size and layout among these devices, some screens or dialogs on your device may appear differently than those shown in this manual. All of the components and controls, independent of device type, will be the same. However, the arrangement may differ. This manual contains screen images from Windows CE devices with both a horizontal screen and vertical screen configuration.

Windows CE Device - Horizontal Screen



Window CE Device - Vertical Screen



3.1 Creating a Project

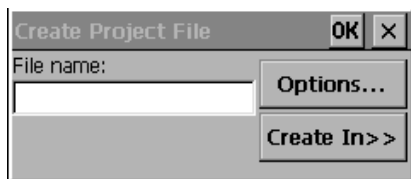
All IMap work occurs within the context of a project. After a project is created, the Map View displays your current position, logged points and controls for data collection and navigation. In the Map View, you can display raster images or basemaps.

When data collection is complete, you can export logged data in several formats and navigate to existing points in your project(s).

The first step in using IMap is creating a new project or opening an existing one.

Steps to Create a Project

1. Be sure you have the program running on your data collector by tapping **Start | Programs | IMap**. An opening prompt will ask you to create a new project or open an existing one.
2. Tap **<Create a New Project...>** to open the **Create Project File** dialog. You can also select **New** from the **File** menu.

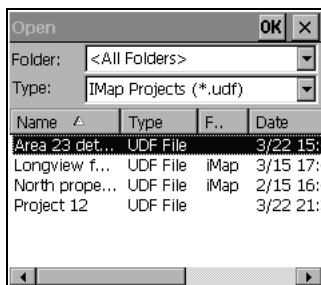


3. Assign the project to a specific folder by tapping the **<Create In>** button to display a list of available folders. Tap **<New>** to create a new folder.

4. Enter a name for your new project in the **Name** field and tap the <OK> button. The default extension of .UDF is automatically added to the file name.
5. The **Settings** dialog is displayed. See Section 3.4, *Establishing Settings*, page 12.
6. Project creation is complete and you are ready to start collecting data.

3.2 Opening Existing Projects

Once projects have been created, you can open them by choosing **File | Open** from the IMap menu bar.



Specify a location by using the **Folder** list and tap <OK> to open the project.

3.3 Communicating with a Desktop PC

Since IMap communicates with GPS receivers through the serial port on the data collector, the serial communications feature between the data collector and a desktop PC must be disabled when IMap is running. Disabling this feature will make communications between the data collector and a desktop PC impossible after connecting the two while IMap is running.

-
- ☒ **Note:** Anytime you have connected the data collector to a receiver and then connect the data collector to a desktop PC without closing IMap, be sure to follow the procedure below to establish a communication link.
-

To communicate with a desktop PC, close IMap before connecting the handheld with a desktop PC. If there is still no communication, follow the steps below:

1. Disconnect the data collector from the desktop PC.
2. Tap **Start | Settings | Communications**.
3. From the **Communications Properties** dialog, tap the **PC Connection** tab and select **Enable direct connections to the desktop computer**.
4. Reconnect the data collector to the desktop PC.

CAUTION

Always keep your data collector's batteries charged. When not in the field, keep your data collector in the cradle. Failure to do so may result in loss of data.

3.4 Establishing Settings

Settings control the parameters for your project. Measurement units, type of instrument used, and active feature files are all examples of project settings.

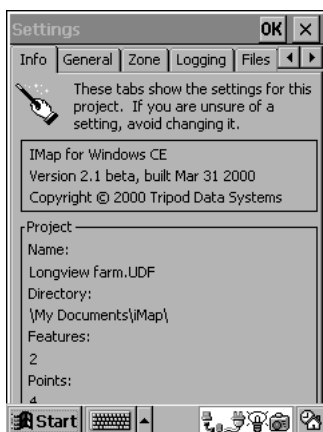
The **Settings** dialog is displayed after you create a new project. The **Settings** dialog can also be accessed at any time by tapping the **View** menu and selecting **Settings**.

Several tabs are available in the **Settings** dialog. Tap the desired tab to access a desired portion of the dialog. Each tab is described in the following sections.

Once every file in the **Settings** dialog box is completed for your project, click the <OK> button to close the dialog and save the settings.

3.4.1 Info

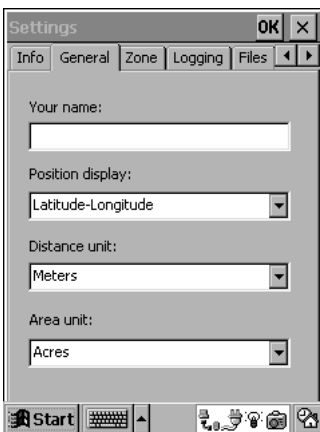
The **Info** tab displays the version of the IMap program and the settings for the current project.



- Project Name**.....This field displays the currently opened project.
- Directory**This field displays where the project file is stored.
- Features**This field displays the number of active and ended features in the project.
- Points**.....This field displays the number of points that have been logged in the current project.

3.4.2 General

The **General** tab is used to set the scale for how your position is displayed and the units to use for distances.



Your name You can personalize the project by entering your name, or any text, in this field (*optional*).

Position Display.....Select **Latitude-Longitude** (geodetic) or **Northing-Easting** (state plane or UTM) coordinates for your position.

Distance Unit.....Select a measurement option from the list for use when entering and displaying distances.

Area UnitSelect an area measurement option from the list such as acres or square kilometers.

-
- ☒ **Note:** Distances are normally entered in the **Distance Unit** field. *These units can be temporarily overridden to either feet or meters by appending the distance entered with the appropriate units.* As an example, if the units for the project are set to meters and you wanted to enter six feet for a distance, you could enter the distance in any of the following formats: **6f, 6 f, 6 ft, 6ft, 6 feet, 6feet or 2 m, 2m, 2 meter, 2meter, 2 meters, 2meters.** The distance entered is then converted to the units configured for the project once the <OK> button is tapped from the current dialog box.
-

3.4.3 Zone

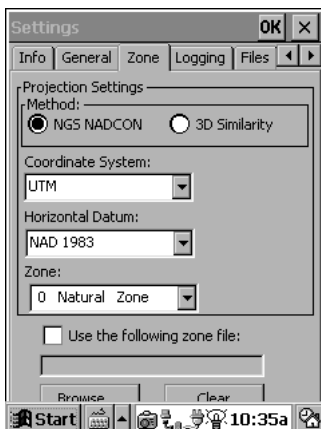
If you are unsure of the zone parameter required for your project, or if it is not important that your project's coordinates tie in with coordinates from another source, simply leave each field in this screen set to their default values as shown on page 23.

If you chose to display **Northing-Easting** coordinates from the **General** tab, the options from this tab will affect both the format for your coordinates and how distances are calculated. If you selected to display **Latitude-Longitude** coordinates from the **General** tab, the options from this page will only affect how distances are calculated.

When using a zone file, the settings on this tab will have no effect. The only necessary step is to select the correct zone file as described on the next page.

See Section 1.3, *Understanding Zone Settings*, page 4 for more information on zone parameters.

Since the options available in each field will vary depending on the selections made in the previous fields, you should make your selections in the same order that they appear on the screen; **Method**, **Coordinate System**, **Horizontal Datum** and **Zone**.



- Method**Select the projection method best suited for your project. In general, the **NGS NADCON** option provides more accurate measurements, but is only valid when working within the United States. The **3D Similarity** option is applicable world-wide.
- Coordinate System**Select **State Plane 1927**, **State Plane 1983** or **UTM**. When using **3D Similarity**, **UTM** option, **Japanese** and **South African** are available when the method is selected.
- Horizontal Datum**.....Select the datum for your project. The options available will vary depending on the previous selections that were made.

-
- ☒ **Note:** If you selected **NAD 1927** or **HPGN** in the **Horizontal Datum** field, follow the additional directions listed below. See Section 3.4.3.1, *North American Datum of 1927 (NAD 1927)* below for more information.
-

ZoneSelect the zone where you are working. If the UTM Coordinate System was selected earlier, you can either select your specific longitudinal zone or the **Natural Zone** option. When the **Natural Zone** option is selected, IMap will automatically choose the correct longitudinal zone from the information sent from the receiver.

-
- ☒ **Note:** In **Natural Zone**, if waypoints exist in two longitudinal zones, or if you cross over to another longitudinal zone while collecting data, a warning will be displayed. To solve the error, follow the instructions provided in the error dialog.
-

Hemisphere

Select the hemisphere you will be working with. The field will only be displayed if you have selected **3D Similarity** as the method.

3.4.3.1 North American Datum of 1927 (NAD1927)

If you choose the NAD1927 horizontal datum, additional files must be available in a specific folder in the data collector.

1. Create a folder called **IMap GeoData** (be sure to include the one space) in the root directory on the data collector.

2. Using ActiveSync, copy the appropriate *.los and *.las files (listed below) from the installation disks to the **IMap GeoData** folder:

(CONUS.LAS, CONUS.LOS for the Continental United States. ALASKA.LAS, ALASKA.LOS for Alaska. HAWAII.LAS, HAWAII.LOS for Hawaii).

3.4.3.2 High Precision Geodetic Networks (HPGN)

Similar to the NAD1927, if you want to use any of the HPGN datum definitions, additional files must be available on the data collector.

1. Create a folder called **IMap GeoData** in the root folder on the data collector.
2. Using ActiveSync, copy the appropriate *.los and *.las files from the installation disks to the **IMap GeoData** folder on the data collector depending on the HPGN datum that will be used, as explained in the following examples.
 - Florida: select the HPGN FL Horizontal Datum and copy the FLHPGN.LAS and FLHPGN.LOS files from the installation disk to the data collector.
 - California: select the HPGN CA Horizontal Datum and copy the CAHPGN.LAS and CAHPGN.LOS files from the installation disk to the data collector.

3.4.3.3 Creating Zone Files

A zone file (*.zon) can be created using **IMap PC** and transferred to your data collector. See Section 3.4.4, *Creating Zone Files in IMap PC*, page 19 for more information. Zone files contain all of your zone parameters and can contain custom projection parameters that are not available by using IMap alone. These files make it easier to select the correct zone

settings for a particular project with less chance for error, especially when working with several projects that have different zone parameters.

☒ **Note:** To use a zone file, it must first be transferred to the IMap program folder (\\Program Files\IMap) using ActiveSync. If the zone file was created with custom projection parameters, then the corresponding coordinate system file (*.cs5) must also be transferred.

Check **Use the following zone file** then tap the <**Browse**> button. Locate the zone file and double tap on it. The corresponding coordinate system file will automatically be selected for custom zone files.

3.4.4 **Creating Zone Files in IMap PC**

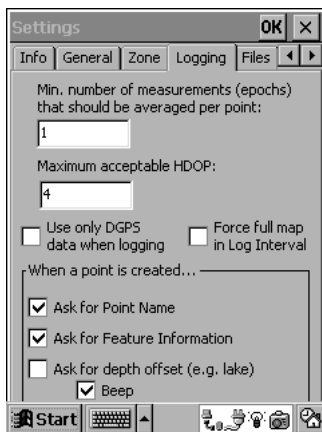
Many common zone parameters can be selected for a particular project from within IMap, but for more flexibility, the IMap PC program should be used.

IMap PC is a powerful program for the desktop PC that runs under Windows 95, 98, or NT. With IMap PC, custom zone files can be created where the projection parameters are user-defined. The zone files are then transferred to your data collector and individually selected for a particular project.

If you are unsure of the zone parameters for a particular project, select the default parameters to satisfy most projects.

3.4.5 Logging

The **Logging** tab is used to define the way points are logged.



Min number of epochs... .. Enter the minimum number of epochs that must be collected and averaged for each point stored.

Max. acceptable HDOP..... Enter the maximum acceptable HDOP for logging points in this field. (*Higher HDOP values result in lower accuracy, where a value of one provides the highest accuracy. Epochs received that exceed this specified value are ignored*). An HDOP parameter of four is recommended.

Only use DGPS data when logging With this option selected, only epochs where a differential correction is applied are used for logging points. When unchecked, the differential correction is still applied, when available, but is not necessary for logging points.

Force Full Map in

Log Interval.....Select this option to keep the Map View displayed when logging in short intervals (less than five seconds).

-
- ☒ **Note:** You can override this by selecting <**Force Full Map in Log Interval**>. When you are logging in short intervals, there will be a high refresh rate for the map view. This can cause your data collector to react slowly in certain situations. By default, IMap disables the Map View when short intervals are used..
-

Ask for Point Name This option prompts for a point name for each point stored. Point names are limited to 20 characters in length

Ask for Feature Info. This option prompts for feature and attribute information when logging points.

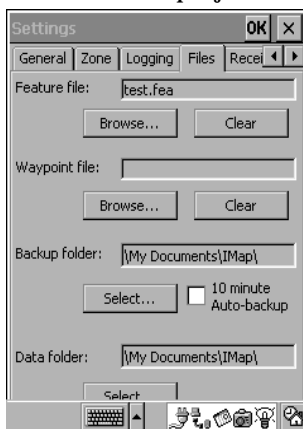
Ask for depth offset (lake)..... This option prompts for a lake depth when storing a point. The absolute value of the number entered is subtracted from the current elevation. For example, if your current elevation was 100 feet, and you entered a lake depth of 25 feet, the final elevation for the stored point would be 75 feet.

BeepWhen selected, your data collector will generate a beep when a point is stored.

☒ **Note:** When logging points without differential correction, errors will typically be about 10 times greater.

3.4.6 Files

The **Files** tab is used to select the Feature file and Waypoint file you want to use for the current project.



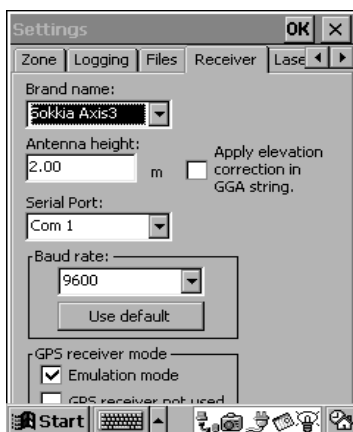
- Feature file** This field displays the currently selected feature file. To select a feature file, tap **<Browse>**.
- Waypoint file** This field displays the currently selected waypoint file. To select another waypoint file, tap **<Browse>**.
- Backup folder** This is where the backup file of the current project is stored. To select from available folders, tap **<Select>**.
- Data folder** The data files are stored here. The files stored include feature files, waypoint files, zone files, and basemap configuration files. To select from available folders, tap **<Select>**.

10 Minute Auto-backup.....When selected, Widows CE will automatically update the backup file for the current project every 10 minutes. The backup file will then be stored in the designated backup folder.

-
- ☒ When **Auto-backup** is checked and you are in **Log by Interval** mode there may be a delay in screen updating during this time. All of the points will be recorded, as well as the Map View being updated at the conclusion of the backup routine.
-

3.4.7 Receiver

The **Receiver** tab contains communications settings for the GPS receiver and the data collector. You can also configure the data collector to operate in emulation mode from this tab.



Brand name Use this field to select the brand of GPS receiver that you are using from the drop-down list.

Antenna height..... Enter the distance from the ground to the receiver antenna in this field. Elevations are calculated in the receiver.

- Apply elevation correction** Select this option to enable IMap to apply corrections for ellipsoid to orthometric elevation. Some GPS receivers perform this correction automatically. You can toggle this option on or off to determine the best results.
- Serial port** Select the serial port on the data collector that is used to communicate with the receiver. Select either **Com 1** or **Com 2**. (Most data collectors only have one serial port, which is **Com 1**).
- Baud rate** Select the baud rate (speed) your receiver uses for communications. This setting must match the setting in the receiver for successful communication. If you are not sure which baud rate your receiver uses, select the default baud rate used for the selected receiver. Tap **<Use Default>** to accept the default baud rate from the list.
- GPS receiver not used** Select this option if you are not using GPS for data collection. This will disable all other options in the folder except for elevation correction.

3.4.7.1 Emulation mode

To access many of the screens within the program while you are outside, IMap normally needs to be connected to a receiver. This can make the process of getting familiar with the program more cumbersome. To see all the screens in an office or training environment, use the emulation mode.

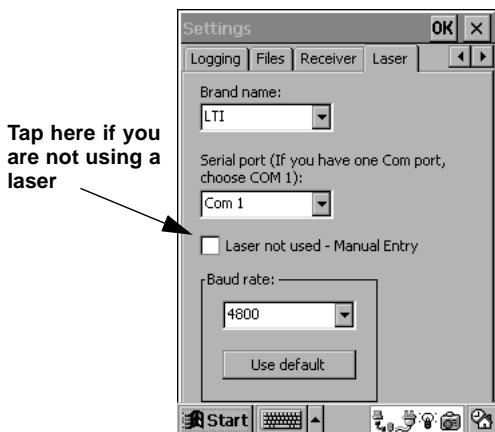
When **Emulation mode** is checked in the **Receiver Settings** folder, See Section 3.4.7, *Receiver*, page 23, IMap acts as if it is receiving a signal from a GPS receiver when it isn't connected to one. When running in emulation mode, IMap is essentially playing a "recording" of a receiver moving around in a large area. This recording is played over and over.

-
- ☒ **Note:** After using emulation mode, it is important to uncheck this option in the **Receiver Settings** folder, before using the unit in the field. Communication with a receiver is not possible when this option is checked.
-

3.4.8 **Laser**

A laser range finder can be used with IMap to store positions that will not be occupied. The **Laser** tab is where you configure the settings for communication with a laser range finder. The settings on this tab apply only when a laser range finder will be connected to the data collector by a communications cable.

-
- ☒ **Note:** If distances from a laser range finder are manually keyed into the data collector, the parameters set on the **Laser** tab will be overridden.
-



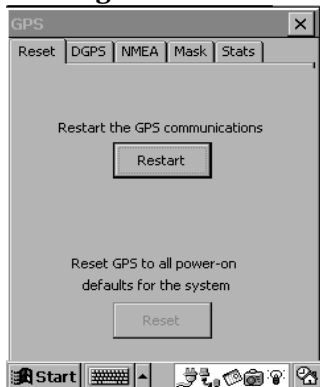
- Brand name**Select the brand of laser range finder you are using.
- Serial port**Select the serial port on the data collector that is used to communicate with the laser range finder. Select either **Com 1** or **Com 2**. Most data collectors only have one serial port, which is **Com 1**.
- Laser not used Manual entry**When selected, Windows CE will not look for incoming data from the laser rangefinder. You can manually enter the offset information.
- Baud rate**Select the baud rate (speed) the laser range finder uses for communications. This setting must match the setting in the laser range finder for successful communications. If you are not sure which baud rate your range finder uses, click the **<Use Default>** button and accept the default baud rate from the list.

3.5 Configuring GPS Receivers

The GPS configuration routine is used to make changes to your U.S. Coast Guard beacon receivers. Before you configure your receiver, be sure you have the appropriate instrument selected. See Section 3.4.7, *Receiver*, page 23 for more information.

Steps to Configure a GPS Receiver

1. Select **GPS Configure** from the **Tool** menu to open **GPS**.



☒ **Note:** Depending on the receiver you have selected, the **GPS** dialog will contain four or five tabs. Functionality within these tabs will also differ depending on the receiver.

2. Adjust settings in each tab as necessary. Refer to the following section for a description of each tab.

Reset Use this tab to restart and reset functions for all GPS receivers. Tapping **<Restart>** will begin communications with the GPS receiver. Tap **<Reset>** to return the receiver to its default power-on settings.

NMEAUse this tab to review current NMEA string status. This function is available for all receivers. Tap <**Defaults**> to set the GGA, GSA, VTG, and SAT/GSV strings on (default IMap setting). Tap <**Minimal**> to enable the GGA string only.

☒ **Note:** The <**Minimal**> setting is useful if you will be logging in data quickly (one point per second). The Satellite Sky Plot will be disabled if the Minimal setting is enabled.

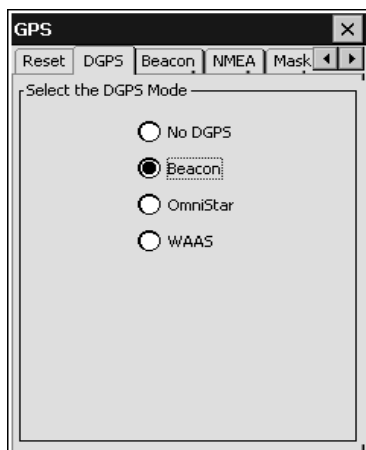
MaskTap this tab to review the current satellite elevation mask (Sokkia, CSI, Starlink receivers). You can enter a new elevation mask and tap <**Set Elevation Mask**> to send the setting to the receiver.

SettingsTap this tab to review the current status of the receiver settings (not available with certain receivers). This tab is for display only and cannot be modified.

☒ **Note:** The following screens will only be seen if you are connected to an Axis³ receiver.

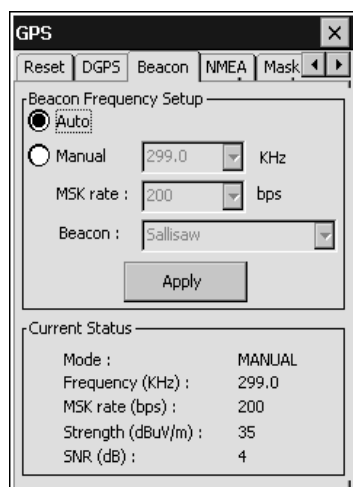
3.5.1 DGPS/Beacon

The DGPS/Beacon tab enables you to configure the Coast Guard Beacon receiver used in conjunction with your GPS receiver. This option is only available if you have selected Starlink, CSI, or Other in the **Receiver** tab of the <**Settings**> dialog.



3.5.2 Beacon

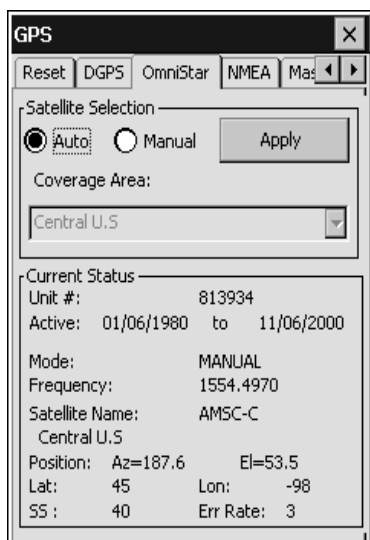
The Beacon tab enables you to configure the Beacon Frequency Setup using Auto or Manual.



3.5.3 OmniSTAR

The OmniSTAR tab enables you to receive the OmniSTAR signals once you have the subscription. To get a subscription you must contact the OmniSTAR office closest to your location to receive the subscription.

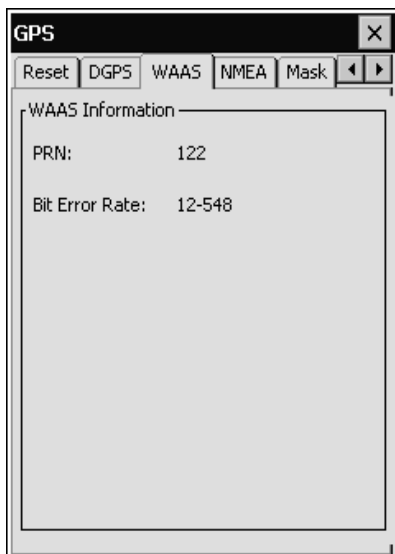
Location	Phone Number	Fax Number
North America	+1-888-883-8476	+1-713-780-9408
Europe/North America	+31-70-311-1151	+31-71-581-4719
Asia, Australia, New Zealand, South Africa	+61-89-322-5295	+61-8-9322-4164
Central American, South America	+1-713-785-5850	+1-713-780-9408



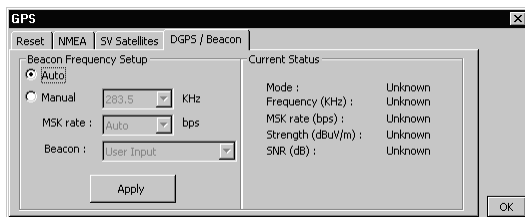
3.5.4 WAAS

The WAAS tab enables you to receive the WAAS signals. WAAS consists of nationwide networks of reference stations that analyze the GPS signal. Each of these precisely surveyed ground stations analyze the GPS signal to see if any errors exist.

A master station calculates correction algorithms that are uplinked to the WAAS satellites, which are then broadcast on the same frequency as GPS (L1, 1575.42MHZ). Receivers within the broadcast coverage area are able to use this signal for position determination.



IMap's default setting for this tab is **<Auto>** .



In Automatic mode, the dual channel beacon receiver will scan available frequencies until a Coast Guard beacon signal with the highest quality is located. This frequency will become the default frequency.

Manual Mode

If your receiver is moved out of range of the default frequency, the scan will begin again. However, you can manually select a Coast Guard beacon.

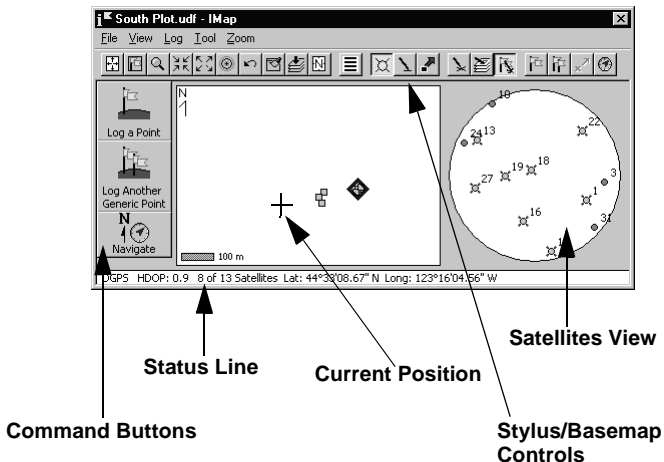
In Manual mode, you can establish settings in the ***kHz*** (kilohertz), ***MSK rate*** and ***Beacon*** fields. The ***Beacon*** list contains an alphabetical listing of all known Coast Guard beacons by name. When you select a beacon, the ***kHz*** and ***MSK rate*** fields will change accordingly.

Tap <**Apply**> to send the settings to the GPS receiver.

Current status of the beacon receiver is displayed in the GPS dialog. This information is display only and cannot be edited.

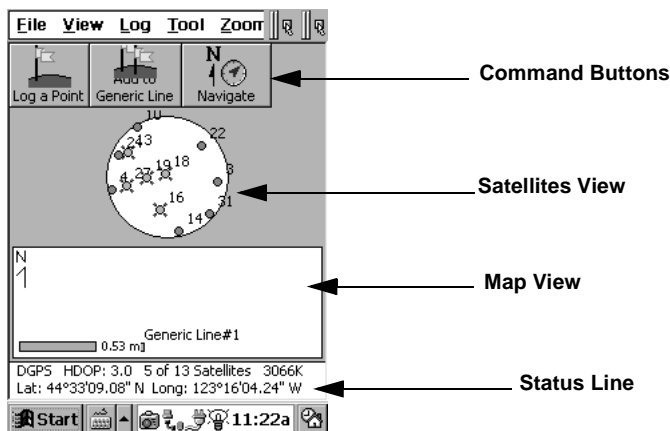
3.6 Working with the Map View

Once you have created or opened a project, the ***Map View*** will be displayed.



The ***Map View*** is used to control data collection and navigation functions, as well as display all your collected points, waypoints and basemap layers.

Depending on the size of your data collector, the Map View may appear differently.



One important difference is the display of the pull-down menu, zoom buttons and the stylus and basemap control buttons. The pull-down menu, zoom buttons and the stylus and basemap controls are all displayed on the same line. Due to the display size, only one of these three elements can be effectively displayed at one time. Slider bars are provided for the zoom buttons and also for the stylus and basemap control buttons.

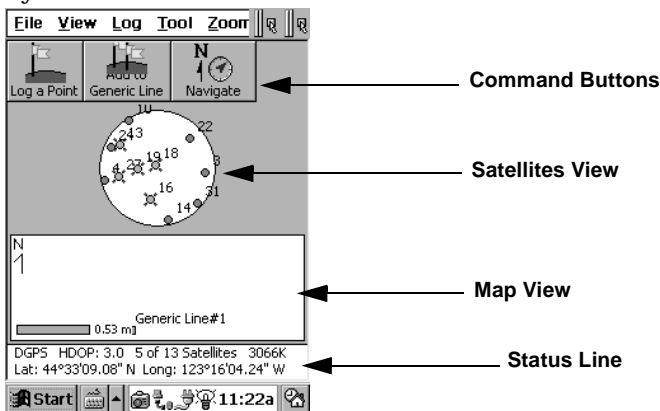
Tapping the button to the right of the slider bars for the zoom buttons will change the display so that all of the zoom buttons are displayed. A tap on the button to the right of the slider bars for the stylus control and basemap control buttons will change the display so that all of the stylus control and basemap control buttons are displayed.

You may also drag the slider bars to display a portion of either set of buttons. You can move the button display to cover all or a part of the menu bar.

3.6.1 Checking Signal Quality

After creating/opening a project, you should either be running in emulation mode; See Section 3.4.7.1, *Emulation mode*, page 24, or you should be outside with the hardware connected.

Once a project has been created or opened, the Map View will display.



☒ **Note:** It can take several minutes after connecting the hardware before the GPS and differential correction signals are available and usable. The signal quality varies depending on the location of the satellites in the sky, which affects your accuracy and is always changing.

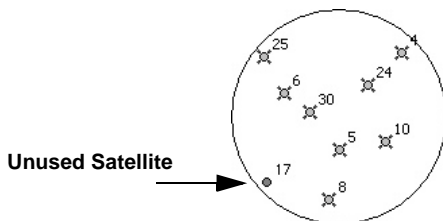
Before you start collecting data, it is a good idea to check the signal quality. The areas that indicate the signal quality are the <*Satellites View*> and *Status Line*.

3.6.2 Satellites View

The *Satellites View* shows a graphical representation of where the GPS satellites are positioned in the sky. The highest accuracy is obtained when at least four satellites are used where

one or more satellites are directly over-head (in the center of the **Satellites View**) and the others are positioned near the horizon, equally spaced apart.

Satellites that are in view, but are not being used are shown as a gray circle. Satellite 17 in the following example represents an unused satellite.



The <**Satellites View**> can be turned on and off by selecting **View | View Options | Satellite Sky Plot** from the menu bar. Turning the **Satellites View** off will increase the size of the Map View.

3.6.3 Status Line

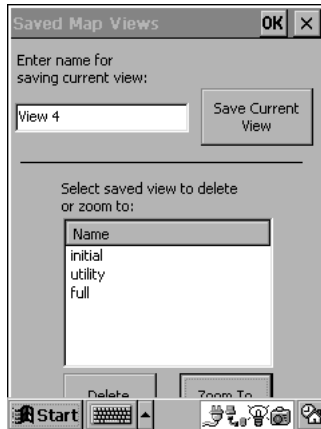
The **Status Line** (located at the bottom of the main screen) provides information similar to the **Satellites View**. The status line indicates the type of signal (GPS or DGPS) being monitored by the receiver. When DGPS is displayed, a differential correction is being applied.

The HDOP (Horizontal Dilution of Precision) value represents the positioning of the satellites. When at least four satellites are in ideal positions this value will be 1.0. Higher HDOP values indicate less than ideal satellite locations and lower accuracy. An HDOP parameter of four or less is recommended.

The **Status Line** also shows your current position in the format chosen from the **Info** tab of the <**Settings**> dialog. See Section 3.4, *Establishing Settings*, page 12.

3.6.4 Saving/Retrieving Map Views

You can save and view “snapshots” of the Map View at any time by selecting **Zoom | Saved Views** from the menu bar. The **Saved Map Views** dialog will display.



To save the current view, enter a name and tap <**Save Current View**>. The new view will then be available for selection in the **Saved Map Views** dialog.

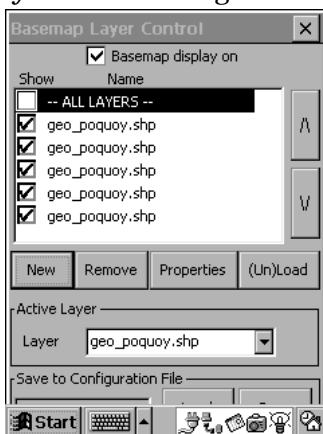
To open a previously saved view, select one from the list and tap <**Zoom To**>.

3.7 Displaying Basemaps

IMap includes the ability to display a basemap as part of the Map View. Both ESRI Shapefiles (*.shp), MapInfo (*.mif), *GeoTIFF and IMap (*.udf) files are accepted. When using basemap files, you will also have access to database information associated with those files.

Steps to Load and Display a Basemap

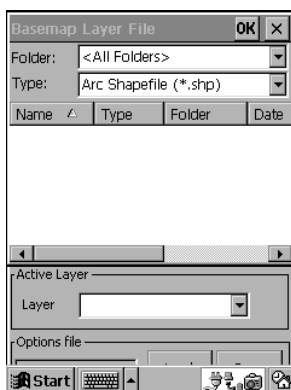
1. From the **View** menu, select **Base Map/Image** to open the

Basemap Layer Control dialog.

The **Basemap Layer Control** dialog is where you select the layers of data to load/display and control the properties of the basemap layers.

-
- ☒ **Note:** To control how the basemap is displayed, tap <Properties>. See Section 3.7.2, *Basemap Properties*, page 40.
-

2. Tap the <New> button to open the **Basemap Layer File** dialog.



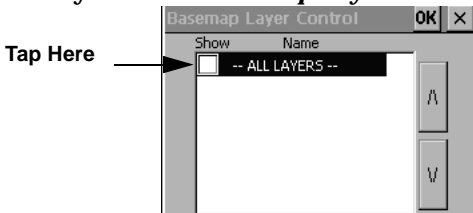
3. Specify the type of file (*.shp, *.mif, *.udf, or *GeoTIFF) by making a selection from the **Type** field. Once a file has been selected, it will be added to the **Basemap Layer Control** dialog list.
4. Each basemap layer must be loaded into IMap before it can be displayed. Highlight each layer and tap the <(Un)Load> button to load the layer into IMap.

☒ **Note:** When a layer is loaded into IMap for the first time, you will be prompted to verify that your current project zone settings match the coordinate system and datum settings of your basemap layer. The settings must match in order to use the basemap effectively.

5. After verifying the coordinate system and datum settings match the current project, enter the basemap layer units when prompted.

☒ **Note:** This procedure will only need to be performed once for each basemap layer used. Configuration parameters for the basemap will be stored for future use.

6. When all specified layers are loaded, place a check next to **All Layers** in the **Basemap Layer Control** dialog.



7. Save the current basemap configuration for reuse by tapping <Save> and entering a name for the current configuration when prompted. You can access the new configuration by tapping the <Load> button.
8. Tap <OK> to close the **Basemap Layer Control** dialog.

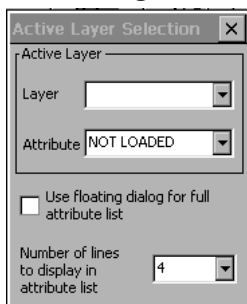
☒ **Note:** When returning to the Map View, select **Zoom | Everything** or **Zoom | Images and Layers | Active Layer** to view the basemap.

3.7.1 The Active Basemap Layer

One of the basemap layers may be designated as an active layer. With this designation, features from that layer can be selected with the stylus in the Map View. When you select a feature from the active layer, you can also access any database information associated with that feature.

Steps to Specify an Active Basemap Layer

1. From the **View** menu, select **Active Layer** to open the **Active Layer Selection** dialog.



2. Select an active layer and an attribute from the given list that will be used as a pop-up label when a feature in the basemap is selected.

3. Check **Use floating dialog for full attribute list** if you want a floating dialog box with all attributes to pop-up when you select a feature in the basemap. If this box is not checked, attribute information will display as part of the Map View.

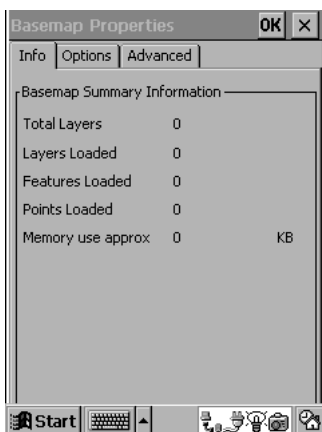
☒ **Note:** When using a basemap, you can zoom to the designated active layer at any time by selecting **Zoom | Images and Layers | Active Layer** from the menu bar.

3.7.2 Basemap Properties

You can control the appearance of basemaps by adjusting several basemap properties. Follow the step below to access this feature.

1. From the **Basemap Layer Control** dialog, tap the **<Properties>** button.

The **Basemap Properties** dialog will display.

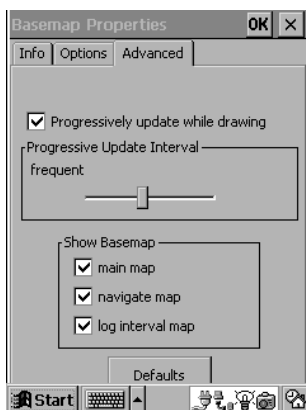


The **Info** tab contains basic information about the current basemap. No changes can be made to this tab.

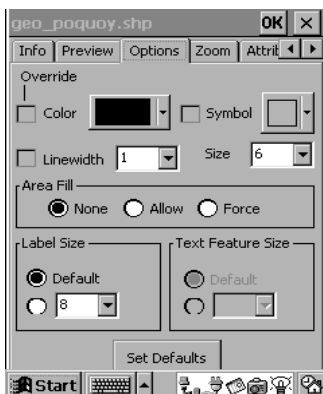
2. Use the **Options** tab to select highlight colors, a popup label size, or restore color settings to the factory defaults.

3.7.2.1 Basemap Properties: Advanced

Use the **Advanced** tab to control panning, update, and display functions for basemaps. The following example shows factory default settings. These can be restored at any time by tapping the <Defaults> button.



When all properties have been set, tap <OK> to return to the **Basemap Layer Control** dialog. Once you have the **Basemap Layer Control** dialog box up check **Basemap display on** and tap on <New>. Then select your *.shp file and tap <OK>. Tap on **Properties** and then select the **Options** tab. By doing so you will see the following screen:



By double tapping on an ESRI shapefile the following options will be displayed:

Color When selected, the color palette is displayed. If you have selected an ESRI shapefile or .UDF file the selected color will be used for all features on the layer.

Linewidth When selected, it is used for all line and area features on the layer if an ESRI shapefile or .UDF file is selected.

Symbol Symbol palette is used for all point features in the layer if you have selected an ESRI shapefile or .UDF file.

Label Size Basemap feature labels will be displayed as a font scaled to the current Map View. To select a specific label by size tap the lower radio button and select the desired size from the pull-down list.

Text Feature Size Windows CE will use a font scaled to the current Map View to display the feature for MIF text features.

Area Fill This is where all polygon features will be displayed with no fill.

3.8 Displaying Raster Images

You can display raster images in IMap's Map View in the form of a GeoTIFF file. For specific information on loading GeoTIFF images (files) from a desktop computer, refer to your data collector documentation.

Note: Basemap Layer Control dialog box allows you to load and display vector basemaps.

The Basemap Layer Control dialog box gives you the selected layers of data you wish to load and display, as well as the ability to control the properties of the basemap layers.

3.8.1 *Selecting Images*

Select which .TIF file you want to load and display as part of your basemap. Tap on the < **New** > button to display the **Basemap Layer File** box. Once the file is selected, it is added to the upper left hand corner of the **Basemap Layer Control** box.

Image Projections

Windows CE is able to assume that the projection and distance units used by the image selected will match the current settings of your project. Make sure that your project settings match the image for proper usage.

☒ **Note:** TIFF and TFW images do not carry any projection or distance unit information such as ESRI Shapefiles.

3.8.2 *Image Display Options*

Image properties and image display may be configured once the image has been loaded. To display the **Image Selection** dialog box you must highlight the desired layer and tap the **Properties** button in the **Basemap Layer Control** dialog box.

The image selection box allows you to preview, view, and adjust the display characteristics. By tapping on the **Image** button, the GeoTIFF Image File dialog box will be displayed. This is where you can specify which .TIF file you want to load and display. Once it is selected it will be displayed in the upper left hand corner of the Image Selection dialog box.

3.9 Exporting Files

When you have completed a project, you will need to export the data in a format compatible with a GIS or CAD system. IMap supports file export in the following formats:

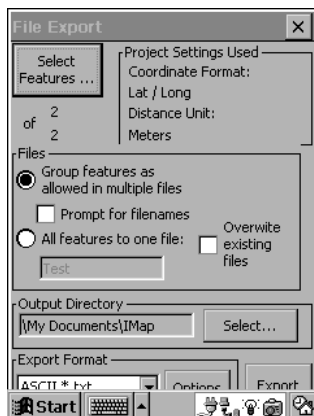
- Text (*.txt)
- TDS CR5 (*.cr5)
- AutoCAD DXF (*.dxf)
- ArcView Shapefile (*.shp)

☒ **Note:** Additional file format exports are available with the use of IMap PC. See Section 3.4.4, *Creating Zone Files in IMap PC*, page 19.

When you export a file in IMap, you will be prompted to save it to a folder on your data collector. You can then transfer the file to a desktop computer using ActiveSync.

Steps to Export a File

1. Select **File | Export** from the menu bar.



2. Choose a file format from the **Export Format** list.

Depending on the format selected you can choose to export features in different ways:

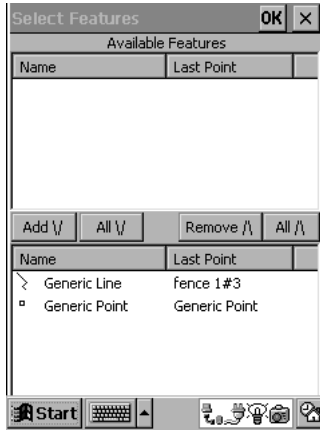
- *.dxf Format.....All features are exported to one file.
- *.cr5 Format.....All features are exported to one file.
- *.shp FormatThree file types (*.shp, *.shx, *.dbf) will be created for each feature layer such as poles and trees.
- *.txt FormatFeatures can be exported as a single file or with unique names.

IMap will automatically provide file names created during the export process. To create unique file names, select **Prompt for filenames** in the **File Export** dialog. Default file names are based on the feature selected. For example, tree0001.shp.

-
- ☒ **Note:** If you select the AutoCAD *.dxf format, you can tap <Options> to select export parameters specific to this format (elevations and attributes). Both elevations and attributes are exported by default. If you select Text *.txt format, you can tap <Options> to select features to include or exclude specific items in this format. If you select *.shp file *.shp format, you can select <Options> to include or exclude specific items.
-

3. Review your project settings listed in the **File Export** dialog. These settings (coordinate format, latitude/longitude, and distance units) are determined by your settings in the **General** tab of the **Settings** dialog. See Section 3.4.2, *General*, page 14 for more information.

4. You can set criteria for what features will be included in the export by tapping **<Select Features>**.



IMap will export all features by default. Selected features are listed in the lower portion of the screen. To remove a feature, highlight it and tap **<Remove>** or tap **<All >** to remove all project features from the export routine. Tap **<OK>** when finished to close the dialog.

5. From the **File Export** dialog, select the output folder where the exported file will be stored by tapping **<Select>**. All exports are stored in the working folder by default unless another location is specified.
6. Tap the **<Export>** button when finished to export files in the selected format.

☒ **Note:** For specific information on transferring files between your data collector, refer to the ActiveSync documentation.

Once you have established settings and determined signal quality, you are ready to start logging points. Three ways are available to log points with IMap (GPS, manually, or with a laser range finder). Each method is described in the following sections.

CAUTION

Always keep your data collector's batteries charged. When not in the field, keep your data collector in the cradle. Failure to do so may result in loss of data.

4.1 Logging Points

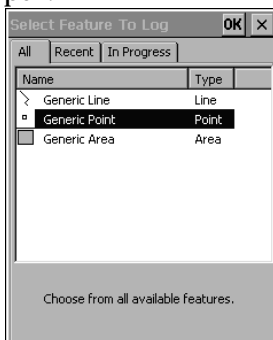
Your method for logging individual points will vary somewhat depending on what type of instrument you are using and point you are logging. If you are using GPS, be sure you configured your receiver properly. See Section 3.4.7, *Receiver*, page 23.

☒ **Note:** The following examples do not use custom feature files. All features shown as selected are built into the program.

Steps to Log a Point with GPS

1. Place the receiver antenna over the point that you want to log and tap the <Log a Point> button. The *Select Feature To*

Log dialog will open.



2. Select a feature for the new point by using one of the three tabs.

All.....This tab lists all available features from the feature file, or from IMap's built-in features.

Recent.....This tab allows you to select from the recently-used features. The most recently used feature is displayed at the top of the list.

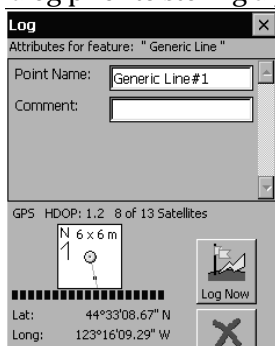
-
- ☒ **Note:** Finding features from the **Recent** tab can be easier than using the **All** tab when you have several different features available to choose from.
-

In Progress.....Select features from this tab when logging points for features still in progress. When selecting from this tab, the original point name for that feature will be offered as the default name.

3. After making your selection, tap <OK>. This will open the **Log** dialog.

4.1.1 The Log Dialog

The **Log** dialog is accessed just prior to storing a point. Depending on the system setup, various feature attributes are defined from this dialog prior to storing a point.

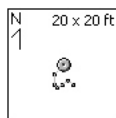


Once the **Log** dialog is opened, each valid epoch received is used to calculate an average position for the current location.

The **Log** dialog displays your current coordinates in the format chosen in the project settings and also displays a graphical representation of your current position.

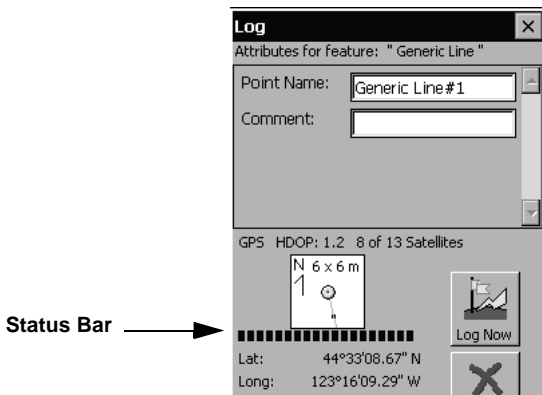
Each section of this dialog is explained in the following section.

The circle in the center of the position box (shown below) represents your position from the last epoch.



The previous epochs are shown as smaller dots attached to the circle like a tail. These indicators will move around as each new satellite epoch gives your position in a slightly different location. The top of the box shows a north reference and the scale of the box, which is either 20 x 20 feet, or 6 x 6 meters.

Immediately below the position box is the status bar.



This status bar includes a graphical representation of the minimum number of epochs that have already been collected. You cannot store a point until the minimum number of epochs have been received, although IMap will continue using the incoming epochs to calculate an average position prior to logging the point.

Note: The minimum number of epochs is set from the **Logging** tab of the **Settings** dialog. See Section 3.4.5, *Logging*, page 20.

The **Deviation** field displays the average distance between the epochs and the calculated average position. In general, the longer you occupy a point, the smaller this distance will become.

4.1.2 Entering Point Names

1. Enter a name in the **Point Name** field and any additional comments (up to 40 characters) in the optional **Comment** field.

2. Tap <Log Now> to store the point and return to the main IMap screen. The new point will appear as a small square in the Map View.

4.2 Logging Additional Points

Once a point has been logged, an <Add To> button will display beside the <Log a Point> button in the Map View. See *Steps to Log a Point with GPS*, page 47.



Use this button to quickly log multiple points with the same characteristics. The <Add to> button provides direct access to the *Log* dialog.

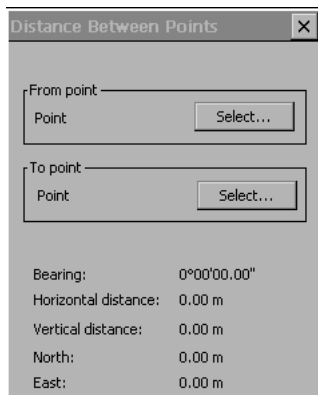
-
- ☒ **Note:** The <Add to> button will be titled differently depending on the type of point that was last logged. The example above references a point feature code called “hydrant.”
-

4.3 Calculating Distances Between Points

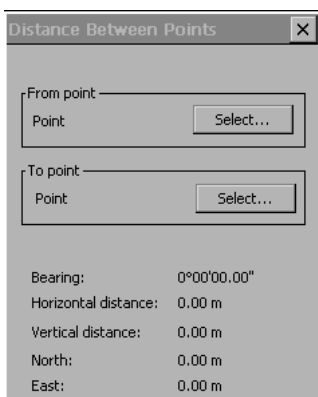
When logging individual points, it may be necessary to determine the distance between two points. IMap includes a utility, that can be accessed at any time, for calculating distance.

Steps to Calculate the Distance Between Two Points

1. Select **Tool | Distance Between Points** from the menu bar. The following dialog will display.



2. Choose the two points you want to calculate the distance between by tapping the <Select> buttons.
3. Select the point feature from **To Point** or **From Point** dialog and tap <OK>.



The distance calculation will be performed and displayed as the bearing, horizontal distance, vertical distance, and north/east coordinates.

4.4 Logging Lines and Areas

If you are collecting data for a feature with more than one point (a fence or a specified area), the procedures are the same. However, your options will be slightly different for logging multiple points. Follow the directions below for logging multiple point features:

1. Tap <**Log a Point**> to open the **Select Feature to Log** dialog.
2. Select the type of line or area you are collecting points for and tap <**OK**>.
3. Enter a name for the point if necessary and select any available attributes for that feature in the **Log** dialog.
4. Tap <**Log Now**> to store the point and return to the Map View.

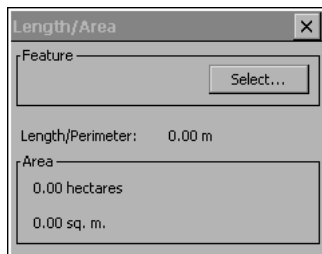
The <**Add To**> button will now be available to log additional points for that line or area. For example, if you selected a line feature called “Fence” in the **Select Feature to Log** dialog, you can use the <**Add To**> button to add more points to the fence line feature.



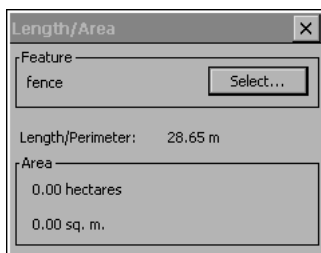
4.4.1 Calculating Length and Area

When logging points for a multiple-point feature, you can use built-in IMap utilities for calculating length or area.

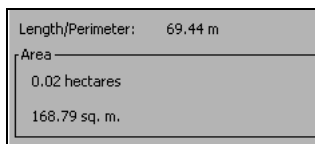
1. Select **Tool | Length/Area** from the menu bar. The following dialog will display.



2. Tap <Select> and choose a line or area feature from the Logged items dialog.
3. Tap <OK>. The feature you selected will display in the **Length/Area** dialog along with the length calculation.

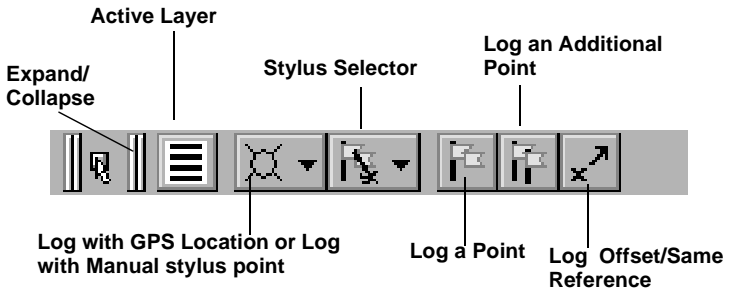


If you selected an area feature in the **Logged items** dialog, IMap will make the calculation and display the results in the **Area** section.



4.5 The Log Toolbar

The Log Toolbar is displayed at the top of the screen next to the menu bar. These buttons are shortcuts to the menu options.



☒ **Note:** Depending on the type of Windows CE device (data collector) you are using, the Log Toolbar may be hidden. To open it, tap the horizontal **Expand/Collapse** bar (indicated in the above example).

4.6 Logging Independent Points

When logging points you may encounter reference objects that need to be logged independent of the feature you are currently working on.

For example, if you are walking down the length of a fence, you might encounter a utility pedestal you want to log. Since the utility pedestal has different features and attributes than your previous point, you will need to log this point independently.

Steps to Log an Independent Point

1. Tap the **<Log a Point>** button and follow the same procedure as when logging an initial point.
2. From the **Select Feature To Log** dialog, select the **All** tab.

3. Double-tap the type of feature you are logging to open the **Log** dialog.
4. Enter a name in the **Point Name** field.
5. Tap the <Log Now> button. The main IMap screen will display where the new point will appear in the map view.

☒ **Note:** Point names that appear in the Map View next to each point can be toggled on and off by tapping the **View** menu and selecting **Point Names** from the **View Options** menu.

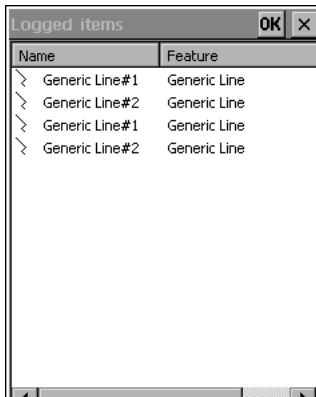
4.7 Ending a Feature in Progress

Any features that consist of more than one point (feature in progress) must be ended sometime after the final point is stored. For example, if you are logging points for a fence, you would store a final point for the fence and then end that feature.

Steps to End a Feature

1. Since the last point logged was not a point for the fence, you must tap the <Log a Point> button from the main IMap screen.
2. From the **Select Feature To Log** dialog, select the **In Progress** tab then double-tap the feature in progress you are working on. For example, the **Generic Line** feature. (You would only select **Generic Line** from either of the other tabs if you were starting a new generic line feature).

3. Store the new point by selecting **<Log Now>**. When you return to the main screen, a third small square will be drawn in the Map View with a line connecting all three squares, which represents the fence.



-
- Note:** If you had a previously-stored point called Fence#2, a default name of Fence#3 would be assigned to the next point. You can accept or change this name when ending a feature in progress.
-

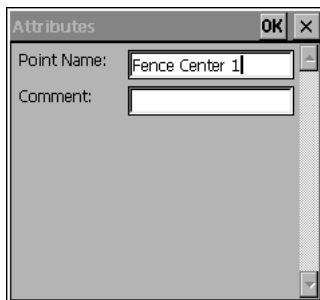
4. To end a feature (such as a fence), which is still in progress, select **End Feature** from the **Log** menu. The **Logged items** dialog (shown above) will open. If you had several features in progress to choose from, you could organize the list by feature name, last point name, feature type, or if it is or is not in progress by tapping the appropriate heading.
5. If you have only one feature in progress, double-tap on it to end that feature.

4.8 Logging Points by Interval

You can automate the logging process by logging points by interval. You can set up IMap to either log points after you travel a specified distance or after a specified time.

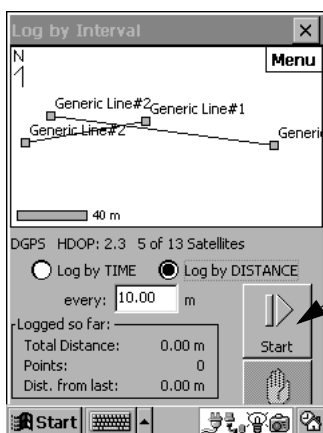
Steps to Log Points by Interval

1. Select **Log | Log by Interval**. The **Select Feature To Log** dialog will display.
2. Select the tab for the feature you want to choose.
3. Select the feature for the points you want to collect by double tapping on it. The **Attributes** dialog will display.



4. Complete the attribute information and tap <OK>. The **Log by Interval** dialog will display.

☒ **Note:** The **Log by Interval** dialog is where the actual data logging takes place.



5. Select if you want to **Log by TIME** interval or **Log by DISTANCE** interval by tapping the appropriate button.
6. Enter the log interval in the **Log Every** field.
7. Click **<Start>** to begin logging by interval (see previous page for an example). **Do not tap the <Start> button on the Windows CE Taskbar.**
8. The first point will be logged at your current position. Once you move the specified distance or wait the specified time another point will be logged. This will continue until you tap the **<Pause>** button or close the dialog.

A description of the command buttons is listed below:

Log Here	The <Log Here> button allows you to log a point at your current position regardless of the distance traveled or time waited.
Attributes	This button allows you to change the current feature attributes.
Menu	This button accesses controls for the appearance of the Map View.

-
- ☒ **Note:** Unlike normal data logging, you cannot average multiple satellite epochs when storing points. Only the first epoch that occurs at the specified interval is used to calculate your position.
-

4.9 Logging Points (laser range finder)

You may experience times when you cannot occupy a particular point due to a safety hazard, GPS signal quality, or inconvenience. This type of point can be logged with an electronic laser range finder.

Three methods are available for storing points with a laser:

Range Triangulation This method requires a distance between the new point and two separate known points.

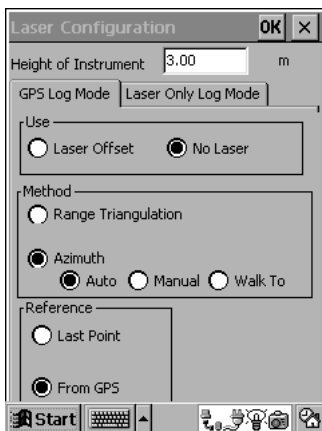
Horizontal Angle This method requires you to enter a distance between the new point and a known point. The horizontal angle from the known point between the new point and a reference point must also be entered.

Azimuth This method requires an azimuth and distance between the new point and a known (previously mapped) point. The azimuth and distance can be provided from the new point to the known point, or from the known point to the new point.

4.9.1 Configuring the Laser

Prior to collecting points with a laser, you must specify certain criteria in the **Laser Configuration** dialog.

Access this dialog by selecting **Tool | Laser Settings**.



-
- ☒ **Note:** The options in the **Laser Configuration** dialog are divided into three sections (Use, Method, Reference). The options in each section will vary depending on your selections in the previous section. If you are using the Laser Only tab, only Method and Reference sections are displayed. **Be sure to make your selections in the order displayed on the screen.**
-

A description of each control and section is listed below:

Height of Instrument Enter the height above the ground at which the laser range finder will be used.

Use Options

Laser OffsetSelect this option if you are using the laser range finder in support of your GPS receiver. This option will only be available if you have selected **Log | Log With | GPS** from the menu bar.

No Laser Offset.....Select this option if you don't want to use the offset functions.

Method Options

Range TriangulationSelect this option to input the distance between two known points and the new point. This option is always available.

AzimuthSelect this option to enter the azimuth and distance between a known point and new point. This option is always available.

Three options are available for azimuth.

AutoBoth the distance and azimuth are provided by the laser range finder.

ManualThe distance is provided by the laser range finder and the azimuth is entered through the keyboard/keypad.

Walk toThe distance is provided by the laser range finder and the azimuth is determined by occupying a second position along the line formed by the known point and the new point. The options require GPS.

Reference Options

From GPSSelect this option to use the current GPS location for known points. This option is only available if you have selected **Laser Offset** or **No Laser** in the **Use** section.

Last Point.....Select this option if you want to use the last point logged for reference.

When finished making selections in the **Laser Configuration** dialog, tap <OK> to return to the Map View.

Laser Only Log Mode *Height of Instrument*: Enter the height above the ground where the laser finder will be used. **Method:** This is where you select the method for use in calculating the position of the new point. To input the distance between the two known points and the new point you must select **Range Triangulation**. If you are using a laser rangefinder equipped with an angle encoder you must select **Horizontal Angle**. To input the azimuth and distance between a known point and the new point you must select **Azimuth**. By selecting **Auto** both the distance and azimuth are provided by the laser rangefinder. By selecting **Manual** the distance is provided by the laser rangefinder and the azimuth is entered by keys.

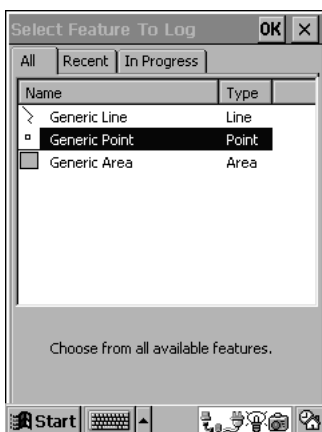
4.9.2 Range Triangulation

If you don't have a method of reading an accurate azimuth for the point you want to log, you can calculate the position by recording the distance between the new point and two known points.

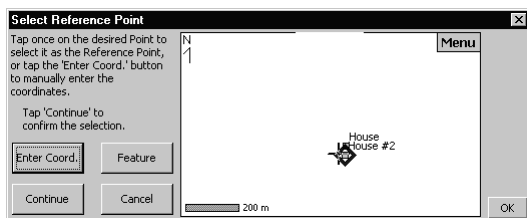
Steps to Log a Point with a Laser Range Finder

The following procedure is valid only if you selected **Laser Only** in the **Use** section of the **Laser Configuration** tab.

1. Select **Log | Log a Point** from the menu bar.



2. Make a selection from the choices in the **Select Feature To Log** dialog, complete the attribute information and tap <OK>. The **Select Reference Point** dialog will display.



3. Tap on the desired point to select it. The point will be highlighted. You can also tap <**Enter Coord**> and manually enter the coordinates of a reference point.
4. Tap <**Continue**>.
5. When the *Laser Input* dialog displays, specify whether you are occupying the reference point or the target.
6. Aim at the first reference point and trigger a shot with the laser range finder to enter the first distance. If you are not satisfied with the data, highlight the *Distance* field and trigger another shot.
7. Enter the height of the first target. This height will be used to calculate the elevation of the new point.
8. Tap <**Next**>. You will be prompted to select the next reference point.
9. Tap on a desired point to highlight it or tap <**Enter Coord.**> and manually enter the coordinates of the reference point.
10. Tap <**Continue**>.
11. Aim at the second reference point and trigger a shot with the laser range finder. If you are not satisfied with the data, highlight the *Distance* field and trigger another shot.
12. Looking from the second reference point to the first, specify if the solution is to the left or right. You can tap <**Refs**> to see a map with the reference points.
13. Tap <**Log**> to calculate the new position and record the feature.

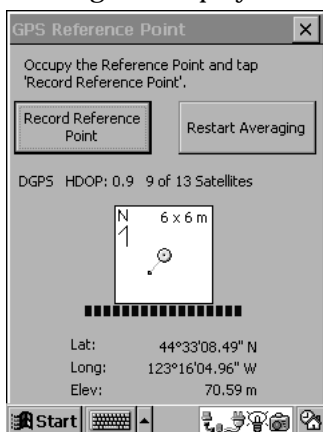
-
- ☒ **Note:** At any time during the logging procedure, you can change the feature and attribute information by tapping the <Feature> button.
-

4.9.2.1 Laser Offset

When you choose Range Triangulation for performing a laser offset, IMap will assume you are using a GPS receiver to determine reference points.

Steps to Log a Point With Laser Offset

1. Tap **Log | Log Laser Offset** to open the *Select Feature to Log* dialog.
2. Select a feature and attribute and tap <OK>. The *GPS Reference Point* dialog will display.



Your current position will be averaged and you will be required to occupy the position for the minimum number of epochs established in the **Logging** tab of the *Settings* dialog. See section 3.4.5 “Logging” on page 20 for more information.

3. Tap **<Record Reference Point>** to store the position. If you are not satisfied with the position, tap **<Restart Averaging>**.

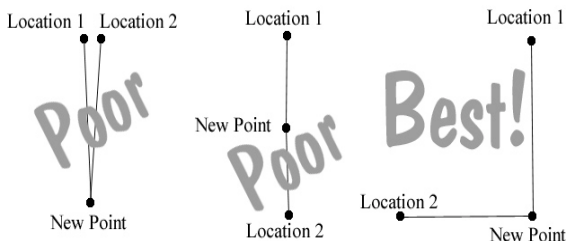
4. Aim at the first target point and trigger a shot with the laser to enter the first distance. If you are not satisfied with the data, highlight the distance field and trigger another shot.
5. Enter the height of the first target point. This height will be used to calculate elevation of the new point.
6. Move to the next reference point and tap **<Next>**. Your current position will be averaged.

7. Tap **<Record Reference>** to store the position.

8. Aim at the target point and trigger a shot on the laser to enter the second distance.

9. Looking from the second reference point to the first, specify if the solution is to the left or right. Tap <Refs> to view a map displaying the reference points.
10. Tap <Log> to calculate the new position and record the feature.

☒ **Note:** The new point is calculated by performing a distance-distance intersection. Because of this, the accuracy of the new point decreases as the angle formed between Location 1, the new point, and Location 2 approaches 0° or 180° . The highest accuracy is obtained when this angle equals 90° . Refer to the following graphic for more information.

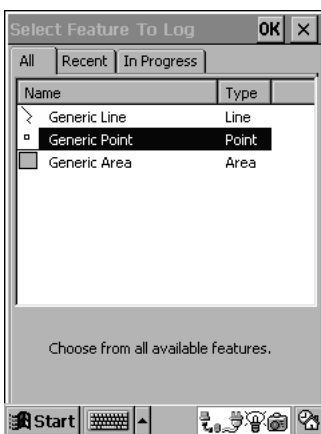


4.9.2.2 Horizontal Angle

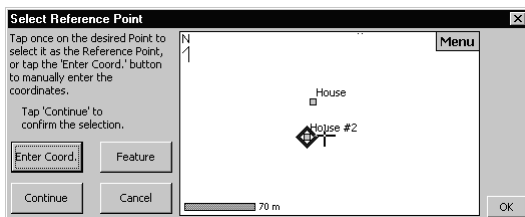
If you have a laser range finder equipped with an angle decoder, you can determine new points by using the horizontal angle method. This option is only valid if you have selected **Laser Only** in the **Use** section of **Laser Configuration** dialog.

Steps to Log a Point Using Horizontal Angle

1. Tap **Log** | **Log a Point** from the menu bar.

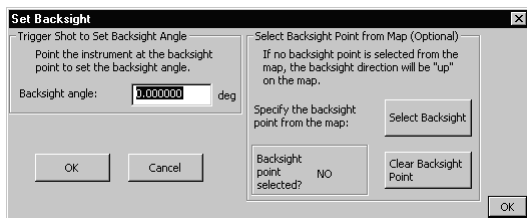


2. Make a selection from the choices in the **Select Feature To Log** dialog, complete the attribute information and tap **<OK>**. The **Select Reference Point** dialog will display.



3. Tap once on the desired point to select it as the occupied point.
4. Tap on the desired point to select it. The point will be highlighted. You can also tap **<Enter Coord>** and manually enter the coordinates of a reference point.

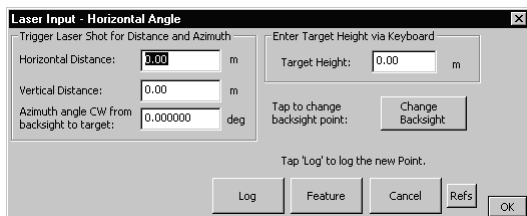
5. Tap <**Continue**> to open the **Set Backsight** dialog.



6. Tap <**Select Backsight**> and choose a backsight point from the map.
7. Aim the laser range finder at the backsight point and set the angle encoder to 0 or trigger a shot from the laser to establish the backsight angle.

☒ **Note:** If there is no backsight point available, target a visible landmark and set the encoder to 0 or trigger a shot from the laser to establish the angle.

8. Tap <**OK**> to move to the **Laser Input** dialog.



9. Aim the laser range finder at the new point and trigger a shot to enter the distance and horizontal angle to the new point. If you are not satisfied with the data, highlight the **Horizontal Distance** field and take another shot.
10. Enter the height at the new point in the **Target Height** field.
11. Tap <**Log**> to record the new point.

-
- ☒ **Note:** You can log additional points using the same occupy and backsight points for reference by choosing **Log | Log Another Same Reference** from the menu bar.
-

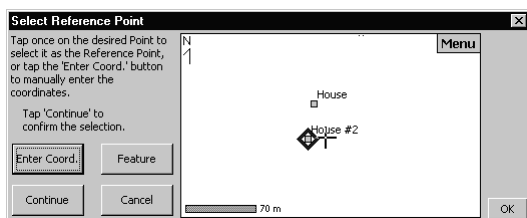
4.9.2.3 Azimuth

If you have a laser range finder equipped with a compass, or if you are using alternate methods to determine an azimuth, you can use the Azimuth method for determining new points.

The Azimuth method has three different options depending on your selections in the *Laser Configuration* dialog.

Steps to Log a Point Using the Auto Azimuth Method

1. Tap **Log | Log a Point** from the menu bar.
2. Make a selection from the choices in the *Select Feature To Log* dialog, complete the attribute information and tap <OK>. The *Select Reference Point* or *GPS Reference Point dialog* will display depending on your selections in the *Reference* section of the *Laser Configuration* dialog.



3. Tap once on the desired point to select it as the reference point. You can also tap <Enter Coord> and manually enter the coordinates of a reference point.

4. Tap <**Continue**> to open the **Auto Azimuth** dialog.

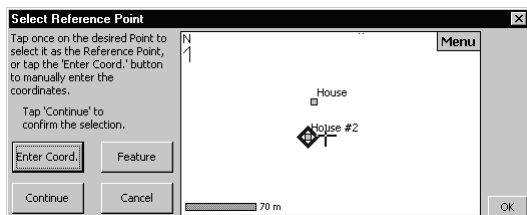
5. Aim at the target (the new point if you are occupying the reference point or the reference point if you are occupying the new point) and trigger a shot from the laser. The **Distance** and **Azimuth** values will be entered. If you are not satisfied with the data, highlight the **Horizontal Distance** field and take another shot.
6. Enter the height at the new point in the **Target Height** field.
7. Specify the direction of the shot by selecting **Foresight** (if you are occupying the reference point) or **Backsight** (if you are occupying a new point).
8. Tap <**Log**> to calculate the position and record the new point.

☒ **Note:** You can tap <**Feature**> at any time to change feature/attribute data. To log additional points using the same occupation and backsight points for reference, choose **Log | Log Another Same Reference** from the menu bar.

Steps to Log a Point Using the Manual Azimuth Method

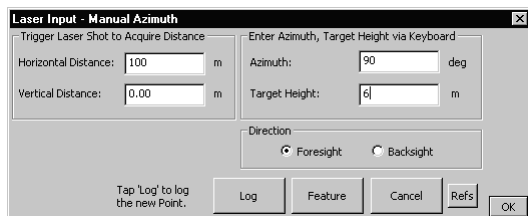
1. Tap **Log | Log a Point** from the menu bar.

2. Make a selection from the choices in the **Select Feature To Log** dialog, complete the attribute information and tap <OK>. The **Select Reference Point** or GPS Reference Point dialog will display depending on your selections in the **Reference** section of the **Laser Configuration** dialog.



-
- ☒ **Note:** If you selected **Last Point** in the **Reference** section of the **Laser Configuration** dialog, the last recorded point will be used and you can skip to step 5.
-

3. Tap once on the desired point to select it as the reference point. You can also tap <Enter Coord> and manually enter the coordinates of a reference point.
4. Tap <Continue> to open the **Manual Azimuth** dialog.



5. Aim at the target (the new point if you are occupying the reference point or the reference point if you are occupying the new point) and trigger a shot from the laser. The **Distance** and **Azimuth** values will be entered. If you are not satisfied with the data, highlight the **Horizontal Distance** field and take another shot.

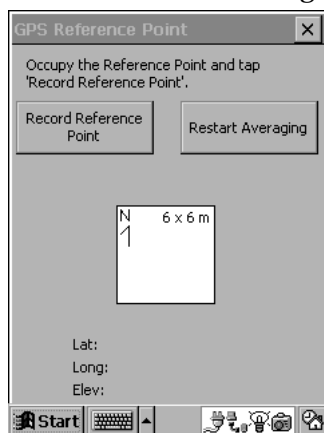
6. Enter the azimuth between the new point and reference point and target height in the appropriate fields.
7. Specify the direction of the shot by selecting **Foresight** (if you are occupying the reference point) or **Backsight** (if you are occupying a new point).
8. Tap <Log> to calculate the position and record the new point.

Steps to Log a Point Using the Walk To Azimuth Method

When using the Walk To method, you must occupy two points along the line formed by the reference point and the new point in order to determine the azimuth.

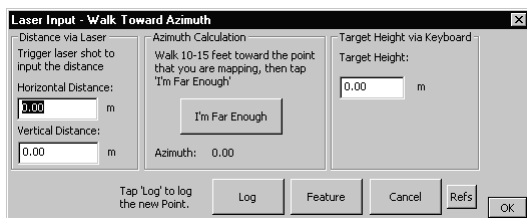
This option is only available if you have selected **Log | Log With | GPS** from the menu bar.

1. Tap **Log | Log a Point** from the menu bar.
2. Make a selection from the choices in the **Select Feature To Log** dialog, complete the attribute information and tap <OK>. The **GPS Reference Point** dialog will display.

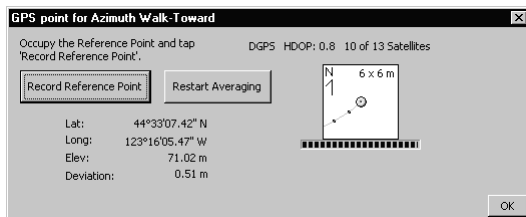


Your current position will be averaged. You must occupy the position for the minimum number of epochs established in the **Logging** tab of the **Settings** dialog.

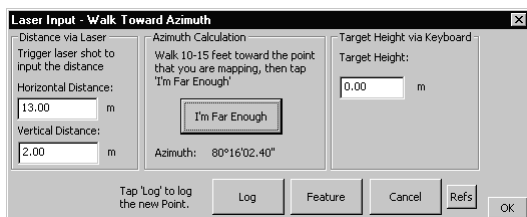
3. Tap <**Record Reference Point**> to store the position. If you are not satisfied with position accuracy, tap <**Restart Averaging**>.



4. Aim the laser range finder at the new point and trigger a shot. The data will be displayed in the **Distance** fields. If you are not satisfied with the data, highlight the **Horizontal Distance** field and take another shot.
5. Walk toward the new point (distance specified in the **Azimuth Calculation** section) and tap <**I'm Far Enough**>.



6. Tap <**Record Reference Point**> when you are satisfied with your position. IMap will calculate the azimuth of the line formed between the two reference points and open the **Laser Input** dialog.



7. Enter the target height at the new point in the **Target Height** field.
8. Tap <**Log**> to calculate the position and log the new point.

☒ **Note:** You can tap <**Feature**> at any time to change feature/attribute data. To log additional points using the same occupation and backsight points for reference, choose **Log | Log Another Same Reference** from the menu bar.

4.10 Logging at a Waypoint

Waypoints are points with known coordinates. They are listed in a waypoint file and are located in the field using the Navigation routine.

Once a particular waypoint is located, you may want to log feature attributes for that point, but **logging a waypoint in the same way as other points would result in a new point being created with slightly different coordinates**. This can be a problem since the waypoint and the logged point would be treated as two different points in most GIS software packages.

The Log at Waypoint routine enables you to log feature attributes for a selected waypoint using the existing waypoint coordinates no matter where you are standing.

Steps to Log a Waypoint

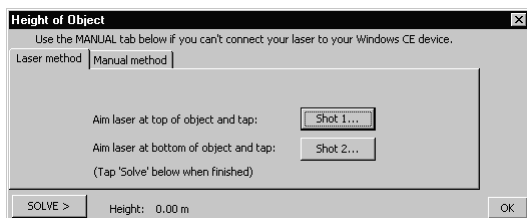
1. Select **Log | Log at Waypoint** from the menu bar.
2. From the **Log at Waypoint** dialog, select the waypoint you want to log as a new point by double tapping on it.
3. Select the appropriate feature tab and double tap on the feature for the new point, which will open the **Attributes** dialog.
4. Fill in the attributes for the feature and tap <OK> when finished. A new point will be logged with the same coordinates as the selected waypoint.

4.11 Determining Object Height

IMap includes two methods to calculate the height of objects. Use these routines at any time using manual entry or a laser range finder.

Steps to Determine Object Height

1. Select **Tool | Height of Object** from the menu bar to open the **Height of Object** dialog.



- If you are using a laser, connect the laser to your data collector, aim it at the top of the object and tap <Shot 1>. If you do not have a laser, tap the **Manual Method** tab.

Height of Object

Use the MANUAL tab below if you can't connect your laser to your Windows CE device.

Laser method | **Manual method**

Make sure your laser is set to display slope distances (SD).

Top distance: 0.00 m

Straight ahead distance (HD): 0.00 m **Example...**

Bottom distance: 0.00 m

Hint: You can enter a value in METERS even if your settings are for feet! Just enter "5.34m" for 5.34 meters.

SOLVE > Height: 0.00 m OK

- Enter the the distances and tap <Solve> to calculate the height of an object. To see a diagram of the measurements you need to enter, tap <Example>.

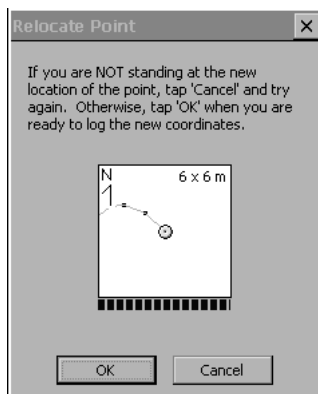
4.12 Changing a Point's Location

The IMap Change Location routine enables you to change the location of any logged point in the current project. In order to use this function, you must occupy the new position where you want the point to be located.

Steps to Change Location

- Tap the **Log** menu and select **Change a Point's Location**.
- A list of all the logged points from the current project is displayed. Double tap on the point you want to move.

The **Relocate Point** dialog will display.



3. When your position is satisfactory, tap **<OK>** to move the point. The existing point's coordinates will now reflect your current location.

4.13 Using the Touch Screen

1. By selecting **Log | Log With/Manual** or by tapping **Log Manual** on the Tool bar you are in Manual logging mode.
2. Tap the Map View where you want the point to be located and then tap **Log | Change a Point's Location**.
3. By doing so, all of the logged points for the current project are displayed. Double tap on the point you want to move.
4. To move the point you must tap **OK**. The existing point will be given the coordinates of the location you tapped in the Map View.

4.14 Typing in New Coordinates

1. Select **View | Stylus Use | Logged Data** or tap **Stylus Logged Data** to make sure the stylus is in use.

2. Double tap on or select **View | Logged Points** to select the point whose location you wish to move. Then select it from a list in the **Logged Items** dialog box. The **Logged Data Info** dialog box will then be displayed.
3. To display the **Edit Point Location** box you must tap on the Edit button.
4. By highlighting the field and typing in the new values you may enter the new North and East coordinates and the elevation at this time.
5. When satisfied, tap <OK> to accept the changes you have made. You will be prompted of the changes made and returned to the **Logged Data Info.** dialog box.
6. To return to the Map View you must tap <OK>.

4.15 Editing Attributes

To edit the attributes for a logged point use the following steps:

☒ **Note:** In order to edit the attributes of the point the original feature code must be logged in the current feature file.

1. By selecting **View | Stylus Use | Logged Data** or by tapping the <Stylus Logged Data> button you are making sure the stylus is in use.
2. Double tap or select **View | Logged Features** to select the point whose attributes you wish to edit. Select the point from the **Logged Items** list and then the **Logged Data Info** will be displayed.
3. To make sure the feature and attribute information is displayed tap on the feature tab.

4. To display the **Edit Feature Attribute Values** tap the **<Edit>** button.
5. When the Feature file is selected you may edit any of the attributes within the parameters established.
6. Tap **<OK>** to save the changes and return to the **Logged Data Info.** dialog box.
7. Tap **<OK>** to return to the Map View.

4.15.1 *Deleting Points*

1. By selecting **View | Stylus Use | Logged Data** or by tapping the **<Stylus Logged Data>** button you have made sure that the stylus is in use.
2. Double tap the point you wish to delete in the Map View or by selecting **View | Logged Points** and then selecting it from the list in Logged Items. The **Logged Data Info.** dialog box will then be displayed.
3. To remove the point from the current project tap **<Delete>**.
4. You will be prompted to confirm deletion. Tap **<Yes>** to confirm the deletion and return to the Map View.

The previous chapters covered setting up your IMap system and the various techniques for logging points in the field.

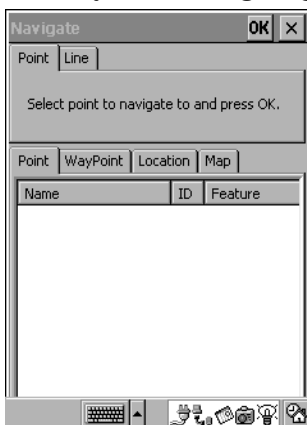
Another important function of IMap is navigating to points with known coordinates. When using the Navigation routine, IMap can accurately locate logged points, waypoints, or manually-entered locations.

5.1 Locating Known Positions

You can use IMap to navigate to existing points you have logged in the current project.

Steps to Locate a Point

1. Select **Navigate** from the *Tool* menu or tap the <Navigate> button.
2. Select the **Point**, **Waypoint** or **Location** tab depending on what type of position you are navigating to.



Each tab (method) is described below.

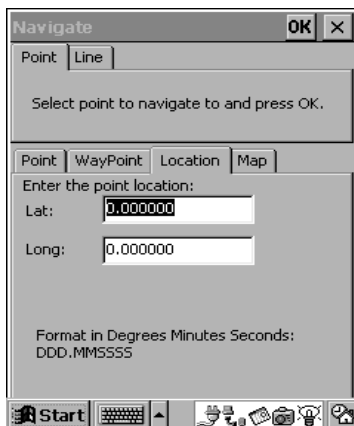
PointUse this tab to navigate to existing points from the current project. The points can be categorized by name, feature or type by tapping on the desired column heading. Select the desired point on this tab by double tapping it.

LineUse this tab to enter the distance and numbers, as well as determining the set start point and set end point.

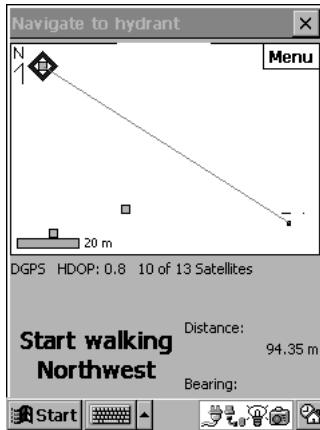
Waypoint.....This tab displays the waypoints in the current waypoint file. See Section 4.6, *Logging at a Waypoint*, page 53 for more information. Double tap on a point to select it. The points can be categorized by tapping on the appropriate column heading. The Visited column displays waypoints previously located using the Navigation routine.

MapThis tab allows you to graphically select points for navigation.

LocationIf you know the coordinates for the point you want to locate, enter them in the appropriate fields from this tab (shown below). Tap <OK> when finished.



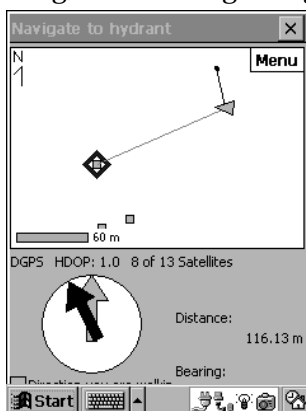
After selecting a tab, the **Navigation** dialog will display. This screen includes information needed to locate the selected point.



3. Follow the directions on the **Navigation** screen.

☒ **Note:** When you are not moving, a cross represents your current position and a message tells you where you need to travel. A thin line connects your current position with the destination point. If you do not have a compass, your direction of travel will be calculated and another navigation screen displayed.

After you begin moving, the following dialog will be displayed.



The light-colored arrow always points forward and represents your direction of travel. The black arrow represents the direction to the destination. When you are traveling toward the destination, both arrows will point forward. The Map View displays your current position as a small triangular arrow. Your previous path is shown as a dark line and the path to the destination is shown as a thin line.

Once you are within 6 meters (20 feet) of the destination point, the right side of the screen will adjust to help you accurately locate the destination.

☒ **Note:** Even though IMap will adjust when you are in close proximity to the destination and is useful for direct navigation to the exact point, the point will typically be in view already.

The circle in the center of the box represents your destination and the cross represents your current position. If you want to stand over the destination, move until the cross is aligned over the center circle. Be sure to hold your data collector so it faces north.

-
- ☒ **Note:** Tapping the <Menu> button will drop down a list of options that will affect the appearance of the Map View. You can pan around in the Map View by dragging the stylus across it.
-

Generating a Grid

Windows CE allows you to generate a grid over a selected area feature, and allows storing of the grid points to a waypoint file for navigation. To generate a grid, you must select the desired area feature in the Map View and then select **Tool | Generate Grid** to display the **Grid Generation** dialog box.

Cell shape

You may choose between a hexagonal and square grid shape.

Parameters

This allows you to enter a specific cell size or a specific cell area. If you change one field the other will change as well because they are linked together. The units for cell size and area are dependent on the units selected in the **Settings | General** dialog box. The default is set at an orientation of 0, or North. This also allows you to set the orientation angle for the grid as well.

Options

By checking the **Output Grid Lines** checkbox you are allowing yourself to choose the grid lines for the generated grid. To label the grid points you must check the **Label Sample Points** checkbox.

To generate the grid you must tap the <Generate> button. You must then enter a file name for the waypoint file containing the grid. Enter the name and then tap the <Open> button to save the file and return to the Map View.

-
- ☒ Windows CE must be set to display waypoints in order to see the new grid points. To turn on the waypoint display you must select **View | View Options | Waypoints**.
-

After the grid has been generated you can select a grid point to navigate to.

-
- ☒ Windows CE has the ability to display an informational dialog box if the number of grid points to be generated is greater than 400 points.
-

Examples

1. If you have a 20-meter square grid with an orientation of 0 degrees without lines or point labels, only the waypoints that fall inside that area are displayed.
2. If you have a 20-meter square grid oriented to 45 degrees with grid lines, only the waypoints inside the selected area are displayed; however, the gridlines for all of the cells that touch that area are displayed.
3. If you have a 20-meter grid with an orientation of 0 degrees with point labels, the only waypoints that will be displayed are the ones from that area.

Names of waypoints are determined by the position. The first number represents the column number and the second number represents the row number. Numbering begins in the northeast corner of the selected area.

4. Select **Navigate** to select the grid point to navigate. The grid points will be listed on the waypoint page.

6.1 Editing Feature Codes

Feature codes are alpha-numeric codes that describe an actual feature. For example, “cl” is a feature code for “Center Line.” Features are identifiable points on a site that help make the collected coordinates easy to identify. Feature files are where feature codes and related information are stored.

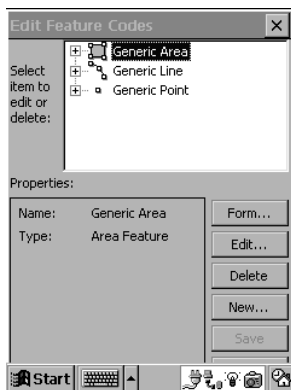
IMap includes several utilities for creating and editing feature codes. (This chapter addresses the creating of new feature codes and files, editing feature codes and working with attributes associated with feature codes). Feature codes and files can be managed on your CE device or on your desktop computer.

IMap includes a routine for editing feature codes. This routine can be used to make changes to existing feature codes in a feature file or create an entirely new feature file.

Steps to Edit a Feature Code

1. From the **Tool** menu, select **Edit Feature Code**.

The **Edit Feature Code** dialog will display. All features in the current file are shown on the left side.



2. Select any of the listed features to display the properties for that feature at the bottom of the screen. Tap the + symbol next to any of the features to display the feature's attributes.

Any existing feature or attribute can be edited or deleted simply by selecting it then tapping the <Edit...> or <Delete> button.

Note: Because a feature must have at least one attribute, the last attribute for a feature cannot be deleted without deleting the entire feature.

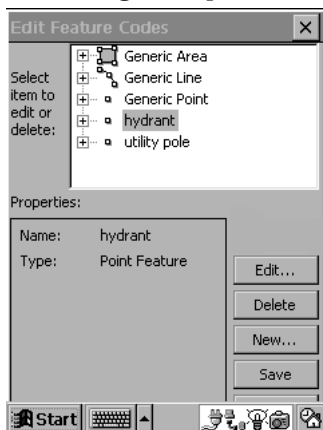
6.2 Adding a New Feature Code

New feature codes can be added at any time. Like the editing routine, new features are handled through the **Edit Feature Code** dialog.

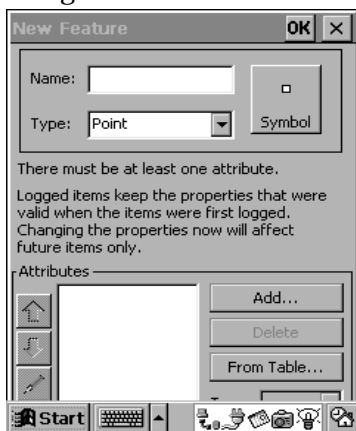
Steps to Add a New Feature Code

1. From the **Tool** menu, select **Edit Feature Codes**.

The **Edit Feature Codes** dialog will open.



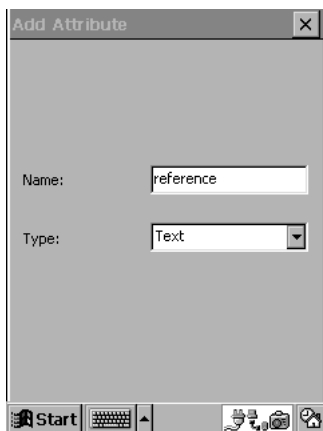
- From the **Edit Feature Code** dialog, tap <New> to open the **New Feature** dialog.



- Enter a name for the feature in the **Name** field and select the type of feature it is from the **Type** field.
- User must select from the list of available symbols.

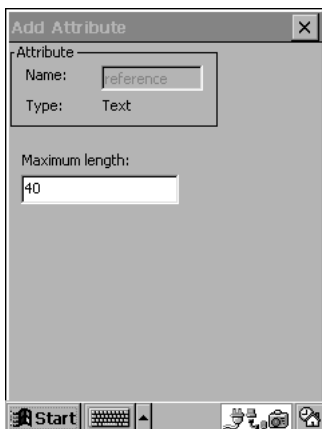
-
- ☒ **Note:** By selecting **View | View Options | Use Symbols** you are selecting the symbol which merely allows you to see symbols other than the default gray box.
-

5. Tap the <**Add...**> button to open the **Add Attribute** dialog.



6. Enter an attribute name. Select the type of attribute from the **Type** field and then tap the <**Next**> button to continue.

If you select **Text** in the **Type** field, the **Add Attribute** dialog will display.



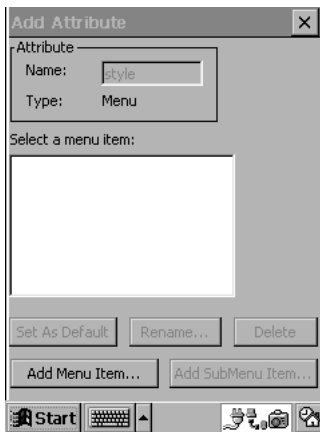
-
- ☒ **Note:** The <Next> button may be hidden by the Windows CE Taskbar. You will need to auto-hide the Taskbar to access this button.
-

7. Enter a maximum character length and tap <**Finish**>.

-
- ☒ **Note:** When describing a feature after logging a point, a Text attribute is entered using any text, a Number attribute is entered using a numeric value and a Menu attribute is entered by making a selection from a list. If you selected a Menu attribute in the **Add Attribute** dialog, follow the instructions below.
-

Steps to Add a Menu Attribute

After selecting <Next> in the **Add Attribute** dialog, the following dialog will display.

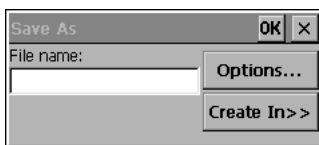


1. Tap the <Add Menu Item...> button to open the **Add Menu Item** dialog. Enter the name for the first menu item in the **Name** field and then tap <OK>.
2. Repeat this procedure as necessary to add all remaining menu items.

The default menu item is the item that initially appears after selecting this feature when logging data. Normally the first menu item entered is the default menu item and is marked with a check. The default menu item can be changed by selecting the desired item and then tapping the **<Set As Default>** button.

☒ **Note:** Menu items can also have sub-menu items. For example, the Pond feature in the example above has **Manmade** as one of the menu items used to describe the Style feature. The **Manmade** menu could possibly have **Concrete** and **Liner** as sub-menu items.

3. To enter sub-menu items, select the desired menu item then tap the **<Add SubMenu Item...>**.
4. Once you are finished entering the menu items, tap **<Finish>** to continue. The **New Feature** dialog will open again. Tap the **<Add...>** button to add additional feature attributes or tap **<OK>** to return to the **Edit Feature Code** dialog.
5. Save your changes to the existing feature file. From the **Edit Feature Code** dialog, tap the **<Save>** button to save the changes to the current feature file or tap the **<Save As...>** button to save the information to a new feature file.



6. When saving to a new file, enter the desired file name in the **Name** field of the **Save As** dialog box.
7. Tap **<OK>**. The *.fea extension will be added to the file name automatically.

6.3 Creating New Feature Files

To create an entirely new feature file, edit the current feature file and delete the existing feature codes. You can then add new feature codes. Once you are finished adding the new feature codes, tap <**Save As**> to add a new name for the feature file.

Adjusting the Layout

By tapping on the <**Form**> button in the *Edit Feature Codes* dialog box you are adjusting the layout of the features in your feature file.

By selecting the *Form Editor* dialog box you are able to drag the field labels and data entry boxes around to the desired position. You also have the option of resizing the boxes at this time.

You may change the color of the labels and boxes by double tapping on them.

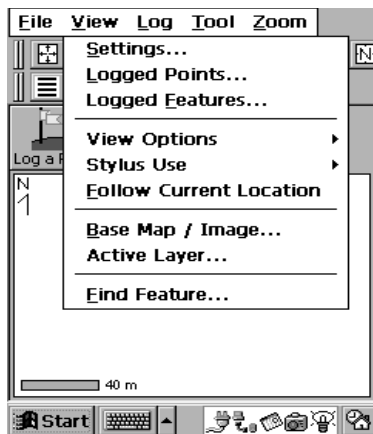
To restore the original settings you must tap the <**Reset**> button.

To accept new settings and return to the *Edit Feature Codes* dialog box you must tap the <**OK**> button. To save the changes you must tap <**Save**> or <**Save As**>.

You can customize IMap in many ways and change the look of the screen to suit your individual needs. The following sections also include a detailed description of IMap's menu options and dialogs.

7.1 The View Menu

The options available from the **View** menu enable you to see details of selected points or features. You can also customize the main IMap screen. Each option is explained in the following sections.



7.1.1 Settings

The **Settings** option accesses a dialog with several tabs that control the settings for the current project. This dialog and each of the tabs within it are described in the IMap Basics chapter. See Section 3.4, *Establishing Settings*, page 12 for more information.

7.1.2 **Logged Points**

This option enables you to view the details for any logged point in the current project. Selecting this option will open a list of logged points. Double tap on the desired point to display the information related to that point.

You can also access this information by double tapping the desired point in the Map View.

7.1.3 **Logged Features**

When this option is selected, the logged features from the current project are displayed. If a particular feature consists of multiple points, only the last point logged for that feature is initially shown. Double tap on the desired feature to display the information related to that feature.

You can also access this information by double tapping the desired feature from the Map View.

☒ **Note:** The following items are on the submenu of the **View Options** view menu option.

7.1.4 **Point Names**

This option will toggle point names in the Map View on or off. When this option is on, a check mark is displayed next to it and the point names will be shown next to each point in the Map View. When this option is turned off, only the point symbols are shown in the Map View.

7.1.5 **Point Numbers**

Selecting this option will allow the point number to be shown next to each point symbol in the Map View. When this option is not selected, only point symbols are shown in the Map View.

7.1.6 **Base Map**

Selecting this option will allow the basemap layers selected in the **Basemap Layer Control** dialog box to be displayed in Map View. When not selected, basemap layers will not be displayed in the Map View.

7.1.7 **Coord Box**

Selecting this option will allow a box to be displayed in the upper left corner of the Map View. This box displays coordinates of a selected Feature, waypoints, basemap features, and manually selected locations. It also displays the coordinates of the last feature logged. When this is not selected, the box is not displayed.

7.1.8 **Waypoints**

Selecting this option will show or hide the waypoints in the Map View of the main IMap screen. When this option is enabled, a check mark is displayed next to it and the waypoints selected for the current project will be shown in the Map View. When this option is turned off, the waypoints will be removed from the Map View.

Waypoints are represented as small circles in the Map View. Logged points are small squares.

7.1.9 **Use Symbols**

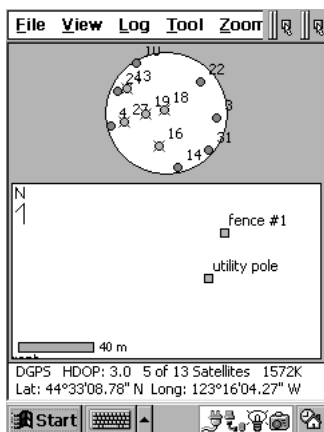
Selecting this option will allow logged points to be displayed using symbols assigned to them in the **Edit Feature** or **New Feature** dialog box. When this option is not selected, the default point symbol will be used.

7.1.10 Large Buttons

By default, IMap will display the three command buttons as part of the main screen.

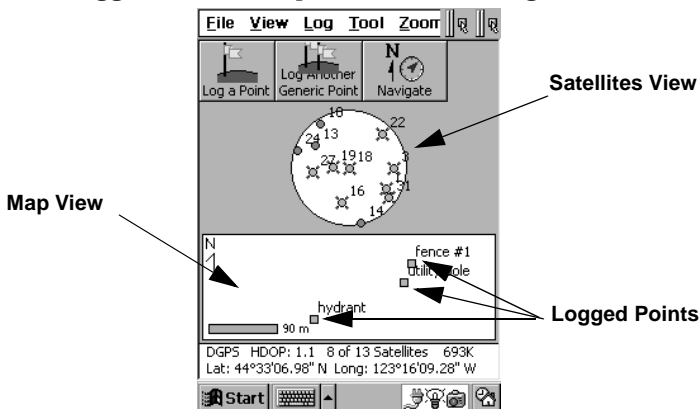


If you need to display a larger area in the Map View, you can hide the command buttons by selecting **View | View Options | Large Buttons** from the menu bar.



7.1.11 Satellites

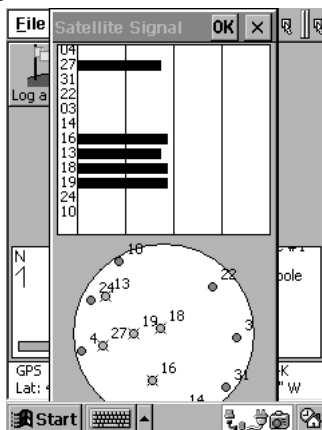
Selecting **View | View Options | Satellite Sky Plot** will toggle the Satellites View on or off. When this option is enabled, a check mark is displayed next to it and the Satellites View is shown in the main IMap screen (as shown below). When this option is toggled off, the Map View becomes larger.



7.1.11.1 Viewing GPS Signal Strength

IMap provides you with a quick option to view all GPS satellites currently being tracked along with each satellite's strength of signal.

You can access this option at any time by selecting **Satellite Strength and Sky Plot** from the **Tool** menu. The **Satellite Signal** dialog will display.



7.1.12 Advanced Options

Selecting this option allows you to filter the display of logged features by type or name.

The default allows all logged features to be displayed. You may toggle off the display of feature types by unchecking the box labeled **Show Point/Line/Area Features**. You may also toggle off the display of individual features by unchecking the box next to the feature name.

Select **Use Filter** and tap **OK** to apply the selected filters.

7.1.13 Follow Current Location

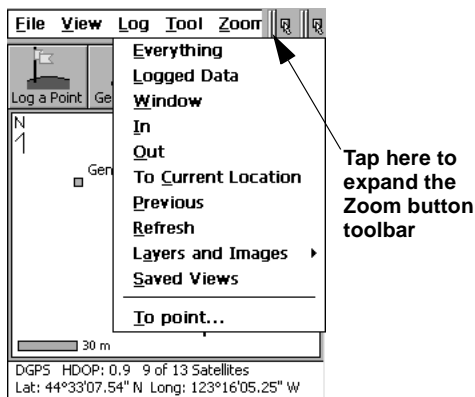
When this option is enabled, a check mark is displayed next to it. It will cause the Map View to pan so that your current position remains visible if you leave the boundary of the Map View. When this option is turned off, your current position will no longer be visible if you move outside the boundary of the Map View.

The following options are available on the **Zoom Menu**:

7.2 The Zoom Menu

The **Zoom** menu contains options that affect the scale and alignment of the Map View.

A **Zoom** button toolbar is located next to this menu at the top the screen. These buttons will perform the same functions as those in the **Zoom** menu.



7.2.1 Everything

Selecting this option from the **Zoom** menu or tapping the <Zoom> button on the toolbar will enable you to scale the Map View so all points are visible.

7.2.2 Logged Data

Select this option to zoom to points in the Map View that you previously logged.

7.2.3 Window

Selecting this option, or using the button on the toolbar, enables you to zoom in on the Map View to the area inside a box that you draw using the data collector's stylus.

- To use the Zoom Window routine, first tap <**Window**> from the <**Zoom**> menu or the corresponding button on the toolbar.
- Drag a box around the desired area in the Map View.
- Once the stylus is lifted from the screen, the Map View will zoom in on the area defined by the drawn box.

7.2.4 In

Selecting this option or using the button on the toolbar will zoom in on the Map View by approximately 30%.

7.2.5 Out

Selecting this option or using the button on the toolbar will zoom out on the Map View by approximately 30%.

7.2.6 To Current Location

Selecting this option will pan the Map View so your current position will be in the center.

7.2.7 Previous

Selecting this option will zoom to the previously logged feature.

7.2.8 Refresh

Selecting this option will refresh the contents of the current Map View and Satellites View.

7.2.9 Layers and Images

Selecting this option opens a submenu to zoom to the designated active layer or a background image. See Section 3.7.1, *The Active Basemap Layer*, page 36 for more information.

7.2.10 Saved Views

You can save and view “snapshots” of the Map View at any time by selecting **Zoom | Saved Views** from the menu bar. See Section 3.6.4, *Saving/Retrieving Map Views*, page 33 for more information.

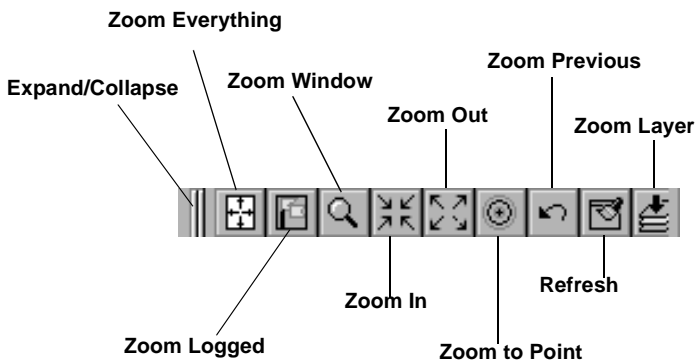
7.2.11 To Point

Selecting this option or using the button on the toolbar will open a dialog displaying logged points and waypoints in the current project. Double tap on any point and the Map View will pan so the selected point is positioned in the center.

☒ **Note:** You can pan the Map View by dragging the stylus across it.

7.2.12 The Zoom Toolbar

The Zoom Toolbar is displayed at the top of the screen next to the menu bar. These buttons are shortcuts to the menu options.



-
- ☒ **Note:** Depending on the type of Windows CE device (data collector) you are using, the Zoom Toolbar may be collapsed. To open it, tap the horizontal bar (indicated in the above example).
-

7.3 Combined View and Zoom Options

The following options are shown when you select **View | Find Feature**.

Find Feature

Selecting this option will call the <**Find**> dialog box. You have the ability to search for features with specific attributes through this option.

Search Features

From a list of all the logged features and basemap layers you must select the feature you would like to search for. The default is All Features.

Search Attributes

You are allowed to select a specific attribute for the feature selected. The default selection is All Attributes.

Find What

You can enter a text string into this field that will be used in the search, for all attributes or for text or menu attributes.

Number Range

Enter a beginning and ending range into these fields, for numeric attributes.

To initiate the search you must tap the <**Find**>. The results will be displayed in the **Search Results** box.

By tapping <**Edit**> you will display the **Logged Data Info** box where you can edit the attributes of the feature. You can also edit the location of the feature from this dialog box.

Tapping <**View**> button will allow enable the display of Map View of the feature with all of the attributes displayed in a spreadsheet format.

To return to Map View you must select <**Go To**>.

Appendix A Troubleshooting

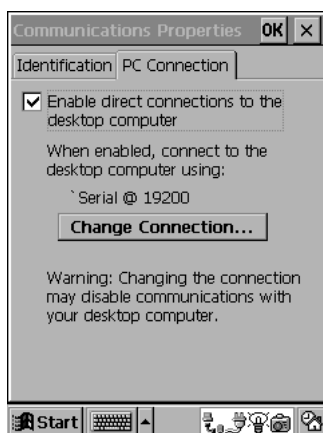
If you encounter a problem when using IMap, consult the following guidelines.

Problem

A connection between the data collector and a desktop PC cannot be made.

Solution

1. On the data collector, open the Control Panel by tapping <Start> and selecting **Settings | Communications**.
2. From the **Communications Properties** dialog, tap the **PC Connections** tab.



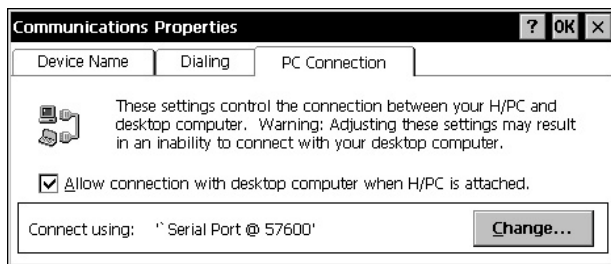
3. Check the **Enable direct connections...** check box and tap <OK>.
4. Disconnect the data collector from the desktop PC then reconnect it.

Problem

Communication cannot be established with the GPS receiver resulting in an error dialog.

Solution

1. On the data collector, open the Control Panel by tapping <Start> and selecting then **Settings | Control Panel**.
2. From the **Control Panel**, double tap the **Communications** icon to open the **Communications Properties** dialog.



3. Tap the **PC Connection** tab.
4. Clear the **Allow connection...** check box and tap <OK>.
5. Disconnect the data collector from the desktop PC then reconnect it.

Problem

The data collector responds very slowly.

Solution

Perform a hard reset by pressing the **Reset** button. The location of the reset button varies depending on the model of your data collector. Consult the manufacturer's documentation if necessary.

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