



MediaGeotagger User Guide v1.2

RED HEN SYSTEMS, INC.

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The *MediaGeotagger User Guide* provides information to field operations staff who need to process media collected by camera, video recorder, and audio recorder. MediaGeotagger associates the collected media with the correct GPS data.

Table of Contents

Preface.....	3
Who is this guide for?.....	3
Why read this guide?.....	3
How is this guide organized?	3
Section 1. MediaGeotagger Overview.....	4
What is the MediaGeotagger?	4
MediaGeotagger Scenario	5
Section 2. Requirements & Installation.....	6
2.1 Requirements	6
2.2 Install Software and Driver.....	7
Section 3. How to Use MediaGeotagger	10
3.1 Before You Begin	10
3.2 Start MediaGeotagger.....	11
3.3 Specify the Type of Project.....	12
3.4 Create a Project and Media Collection	14
3.5 Import GPS Data	16

3.6 Select a Collection Device	18
3.7 Set Up Device.....	20
3.8 Calibrate the Device: Identify Method.....	25
3.9 Calibrate the Device: Set Time	31
3.10 Import Media.....	33
3.11 Geotag Media	34
3.12 Verify Geotagging	37
3.13 Explore the Project Directory Structure.....	39
4 Getting Help	40
4.1 Read the Manual	40
4.2 Trouble Shoot	41
3.3 Contact Support.....	42
Appendix A. Glossary.....	43

Preface

Who is this guide for?

This guide is for **Field Operations Staff**. This is typically someone who works “behind the scenes” to gather reconnaissance and intelligence information in the form of digital photos, videos, or audio recordings. This individual uploads the digital media to a computer and then uses MediaGeotagger to add GPS information so the media can be used with maps.

Why read this guide?

This guide provides you with step-by-step instructions for processing digital media with MediaGeotagger so the media has the appropriate GPS data in its headers.

How is this guide organized?

The guide is organized into four easy-to-read parts and an appendix:

- **Section 1. Overview:** This section is for “big picture” readers who want an overview of MediaGeotagger to understand WHY they might need to use it.
- **Section 2. Requirements and Installation:** This section is for people who will be installing the software. It lists the hardware and software requirements, as well as step-by-step instructions for successfully installing MediaGeotagger.
- **Section 3. Tasks:** This section is for “hands-on” readers who want to start performing geotagging tasks with MediaGeotagger. The section contains step-by-step instructions for each task, with tasks grouped into convenient categories for ease of use.
- **Section 4. Getting Help:** This section provides ways to get assistance when you run into trouble.
- **Appendix A. Glossary:** This appendix lists the various terms and definitions associated with MediaGeotagger.

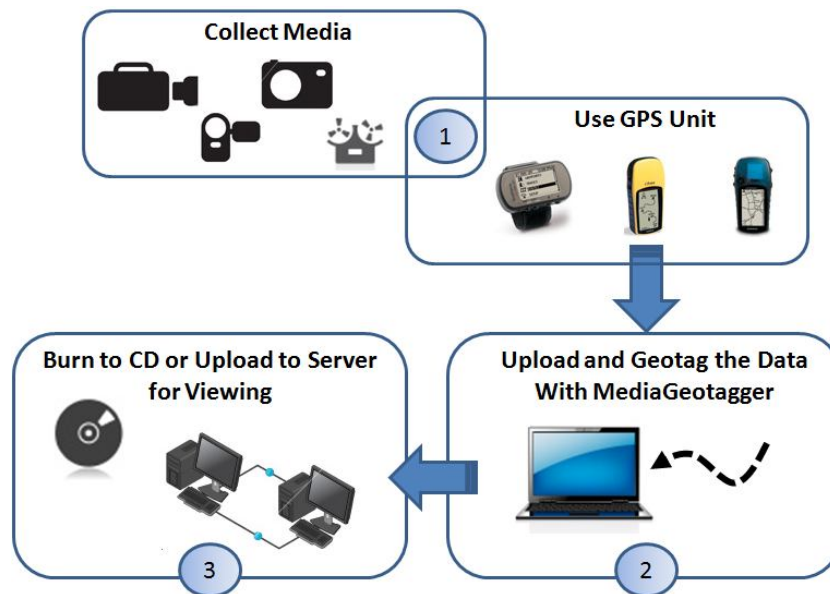
Section 1. MediaGeotagger Overview

This overview section is for “big picture” readers who want to get a general idea of what MediaGeotagger is and situations where it comes in handy.

What is the MediaGeotagger?

MediaGeotagger is a software application developed by Red Hen Systems. It allows you to process digital media collected from a variety of devices, such as cameras, video recorders, and audio recorders, all collected in conjunction with a GPS unit. MediaGeotagger uses the track log from the GPS devices to associate geographic locations with the media.

MediaGeotagger performs a lot of complicated functions behind the scenes. For those of you interested in what goes on “under the hood,” here’s the story ... starting with what happens on data collection side of things.



1. The operations staff goes into the field with a GPS unit and a digital data collection device (camera, video recorder, or audio recorder). Staff members collect photos, videos, and audio clips while their GPS units take sample locations along their travel paths.
2. Back in the office, they hook up their GPS units and digital devices to their computers. They upload the track logs from their GPS units and the digital media from their collection device so that MediaGeotagger can determine WHERE the media was collected, relative to the GPS points in the track log, based on the times they were collected. This involves:

- Inputting general information about the MediaGeotagger “project” that will contain the eventual geotagged media.
 - Identifying the GPS information source (either a GPS unit or one or more track logs on the file system).
 - Identifying the make and model of the collection device.
 - Setting up the device.
 - Specifying where the time calibration information will come from (GPS unit, Internet, other accurate clock display, calibration media, or media collection device)
 - Importing the media to a directory on your computer.
 - Setting the current time.
 - Associating the media with GPS track points (geotagging it).
 - Verifying the geotagging process.
3. Staff burns the geotagged media to CD for viewing on laptops or uploads it to the server for viewing on the Web.

Next, let's look at a scenarios built around these steps.

MediaGeotagger Scenario

Renee and David are field agents in Singapore, tasked with determining the safest escape route from the American Embassy. They have both walked the streets, videoing potential routes that offer safety from sniper fire and safe passage on foot and by vehicle.



They plan to upload their media and geotag it with location information using MediaGeotagger. This will then allow analysts can study the media and develop contingency plans for escape routes.

Next, we'll look at the software requirements for MediaGeotagger.

Section 2. Requirements & Installation

2.1 Requirements

Before you install MediaGeotagger, make sure your system meets these hardware and software requirements:

Item	Requirement
Disk space	2+ GBytes (varies with the number of maps and video stored)
Memory	0.5 Gbytes
Operating System	Windows XP Professional
Monitor	Minimum screen resolution must be 800 x 600; however, we recommend 1280 x 1024 for better map viewing.
Two or more free USB ports (recommended)	We suggest your laptop have two free USB ports – one for your media collection device and one for your GPS unit.
Required codec s	If you collect data with a video camera or audio recorder, make sure you have the required codecs installed on your computer to play the audio and video. A codec is a program that encodes and decodes digital streamed data. If you cannot play the files on Windows Media Player, it means you do not have the required codec packs. Try checking your device manufacturer 's Website or manual for more information on the codecs you need and where to find them.

Supported and tested media collection devices:

Manufacturer	Model
Canon	Vixia HF S100
Nikon	D300s

Supported and tested GPS units:

Manufacturer	Model
Garmin	Foretrex 101, Foretrex 301
Garmin	Vista C, CX; Legend C, CX; Oregon

If you meet the requirements, it's time to install MediaGeotagger.

2.2 Install Software and Driver

Install MediaGeotagger

Follow these steps to install MediaGeotagger once all requirements are verified.

1. From the CD, click **setup.exe**.

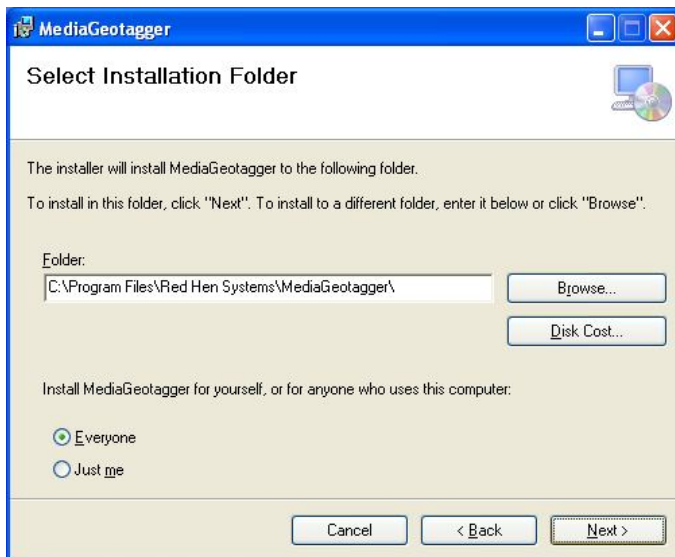
Note: Some customers may get this setup executable in a zip file, others may find it in a CD directory called **MediaGeotagger**.

2. The Welcome page of the MediaGeotagger Setup Wizard appears.



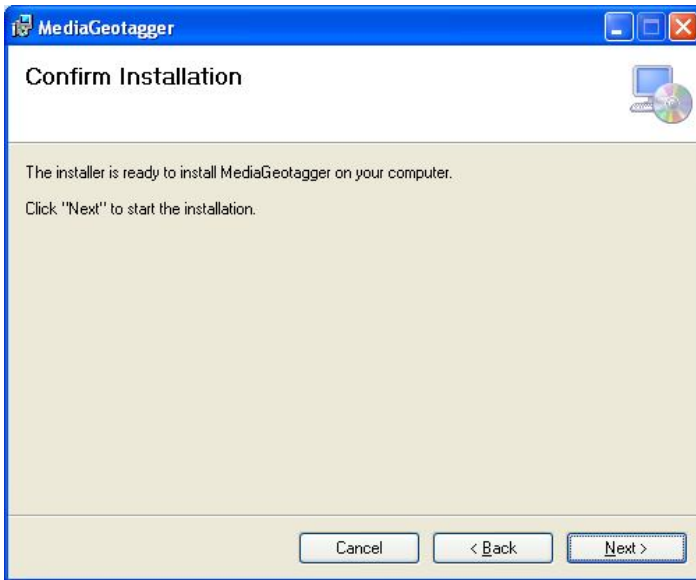
- Click **Next**.

3. The Installation Folder page appears.



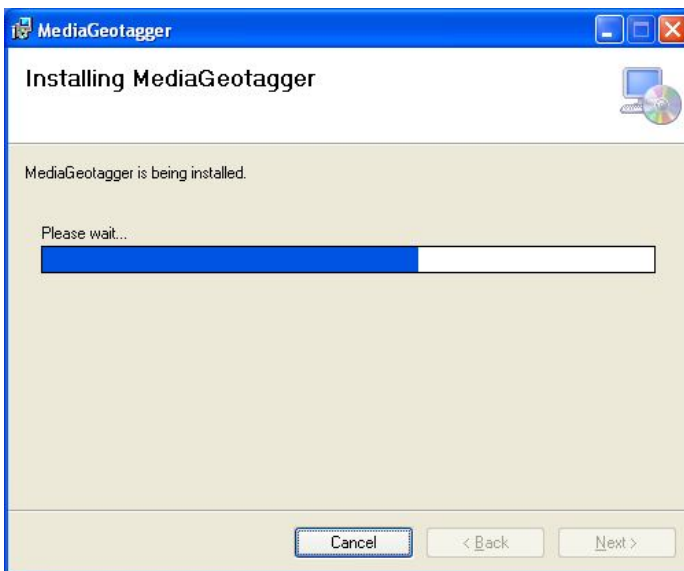
- Allow the location of the installation folder to default or use the **Browse** button to select a different location. This is the location where you want MediaGeotagger installed.
- **Disk Cost** lets you quickly see how much space is on various disk drives. This should help you choose a disk with enough space.
- Click **Next**.

4. The Confirm Installation page appears.

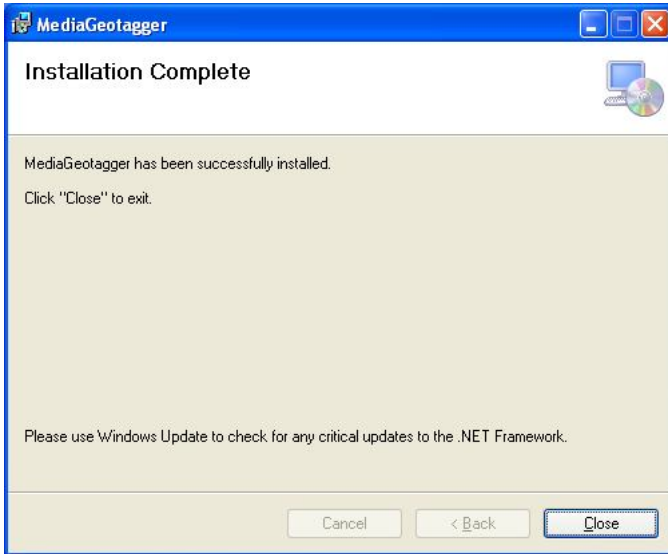


- If you have any concerns about where the MediaGeotagger will be installed, click **Back** to return to the previous page and make any changes.
- Otherwise, click **Next** to begin the installation.

5. The installing MediaGeotagger dialog appears.



- When the installation completes, a completion page appears.



- Click **Close**.

Install Garmin GPS Unit Device Driver

If you plan to pull track logs and time information directly from your GPS unit, you need to make sure to install the appropriate device driver.

Note: If you plan to use track logs that are stored on the computer, or if you put the Garmin in mass storage mode, you do NOT have to do this.

- Use the driver CD that came with the GPS unit. Follow the instructions that appear when you insert the driver CD.

–OR–

Go to Garmin's website and download the appropriate driver:

http://www8.garmin.com/support/download_details.jsp?id=591

Now that you've finished the installations, it's time to use MediaGeotagger!

Section 3. How to Use MediaGeotagger

This section documents ALL tasks you can perform with the MediaGeotagger, grouped into categories for quick access. We provide step-by-step instructions for each task.

3.1 Before You Begin

Important! Read this section so you have everything you need BEFORE you begin using MediaGeotagger.

1. Make sure you have collected the appropriate media and have the following available:
 - digital collection device (camera, video recorder, or audio recorder)
 - memory card and memory card reader
 - OR–
 - appropriate cable if the device has its own internal storage
2. **For audio and video devices only:** Make sure you have the required codec pack installed on your computer. This software is necessary for Windows Media Player to read the audio or video files you collect. If you are not sure you have the correct codec pack, connect your media collection device to the computer or put its memory card in the memory card reader (connected to the computer) and try opening one of its files with Windows Media Player.
 - If the file opens in Windows Media Player, the required codec pack is already installed.
 - If the file will not open, you are missing the required codec pack that decodes the files. In this situation, you must download the required codec pack from the Internet.
3. Have your GPS unit handy and make sure it is charged up.
4. Do NOT transfer your media to the computer at this point. If you do so, it may affect the time stamps, and geotagging will not occur properly.
5. Make sure your computer has at least two free USB ports:
 - One for your GPS unit
 - One for your media collection device

3.2 Start MediaGeotagger

There are two common ways to start MediaGeotagger.

From Programs List

1. Click the **Start** button at the bottom left of the Desktop.
2. Click **All Programs > Red Hen Systems > MediaGeotagger**.
3. The MediaGeotagger Welcome screen appears. [See Task 3.3](#) for details.

From Desktop Icon


1. Click the **Start** button at the bottom left of the Desktop.
2. Click **All Programs > Red Hen Software**.
3. Right-mouse click **MediaGeotagger** from the pop-up menu and select **Create Shortcut**.
4. The MediaGeotagger icon now appears on the Desktop. From now on, you can simply click the icon to start the application.



5. When you click the icon, the MediaGeotagger Welcome screen appears. [See Task 3.3](#) for details.

From within Red Hen Systems map viewing application

MediaGeotagger is not only a stand-alone program, it is also a plug-in for a number of Red Hen Systems map viewing applications (for example, RouteScout).

1. From the map viewing application, click Red Hen Applications icon .
2. A small dialog appears that lets you select **MediaGeotagger**.
3. The MediaGeotagger Welcome screen appears. [See Task 3.3](#) for details.

3.3 Specify the Type of Project

1. Once you start MediaGeotagger, the Welcome screen appears.



Everything you do with MediaGeotagger revolves around the concept of a **project**. A project is a set of related media and GPS information associated with a particular task or mission. The media generally includes audio files, video files, and photos, and the GPS information includes GPS track logs. For example, you might have a project associated with determining the location of supplies for your company.

2. Decide which project you plan to use by selecting the appropriate radio button.

Create a new project. Select this radio button if you need to create a new project.

- The **Create a Project and Media Collection** screen appears.
- [Go to Task 3.4](#) to learn how to perform this task.

Use an existing project that was saved. Select this radio button if you already created a project in the past and want to do more work in it (add media, calibrate devices, etc.)

- Click **Browse** and select the ***.rhproj** file associated with the project you want to work on.
- Click **Open**. A Wizard appears displaying the last screen you were on when you previously worked on the project.
- Find the task associated with that screen in this user guide to continue.

Use an open project. Select this radio button if you already created a project and are currently viewing it with any Red Hen viewing application.

- A **Select Open Project** window appears where you can select the appropriate open project.
 - Then click **OK**.
 - A Wizard appears displaying the last screen you were on when you previously worked on the project.
 - Find the task associated with that screen in this user guide to continue.
3. When the Wizard appears, it will guide you through the geotagging process. Here is the complete list of tasks you may be asked to complete. Depending on your situation, you may not have to perform all of them:

- Create a media collection and project
- Import GPS data
- Select a collection device or add a new one
- Set up the device (for new devices)
- Calibrate the device (select the method of capturing a calibration image and set the time)
- Import the media
- Geotag the media
- Verify the geotagging
- Save your work and exit MediaGeotagger at any time

No matter what task you are working on, these buttons apply:

- **Next** moves you to the next step of the process.
- **Back** moves you to the previous step of the process.
- **Close** saves the work you have done so and exits the program. When you start up MediaGeotagger later, you will return to the current step of the process where you saved your work.

All tasks involved with the geotagging process are explained in the rest of this User Guide.

3.4 Create a Project and Media Collection

MediaGeotagger works with media collections and projects. Before you can geotag media, you must specify the media collection and the project.

1. The Wizard displays the **Create a Project and Media Collection** page.

2. Enter the necessary identification information for a new MediaGeotagger project:

General Information

- **User/Collector Initials.** Use your own initials.
- **Country Code.** Make sure this is correct.
- **Collection Date (YYYYMMDD).** Enter the data that the media was collected (this must be a date on or before today's date).

Identification

- **Media Collection ID.** A numeric identifier for the set of media you collected. This number is automatically generated, but you can change it.
- **Media Collection Name.** A short descriptive name for the set of media you collected.
- **MediaGeotagger Folder.** This is the "parent" folder under which all MediaGeotagger projects are stored. By default, it is located in **C:\MediaGeotagger Projects**. Use the **Browse** button to browse through the file system and select another folder if necessary
- **Project Path.** This is the full pathname to the "project file," a special file that contains all the metadata about your media. This metadata includes the name of the folder where your project

media is actually located, its GPS information, keywords, and notes. To create the file name, the system uses your initials, country code, and collection date, and appends it with an **.rhproj** extension. For example: **C:\MediaGeotagger Projects\ C:\MediaGeotagger Projects\US20100819MER_01.rhproj**

Note: MediaGeotagger creates a folder for your specific project, which will eventually contain the geotagged media, as well as the original media and GPS track log(s). Although the name of this folder does not appear on the Wizard screen, it does exist. The folder's name is the same as the project file, with a **".files"** extension. For example: **C:\MediaGeotagger Projects\ C:\MediaGeotagger Projects\US20100819MER_01.rhproj.files**

Details

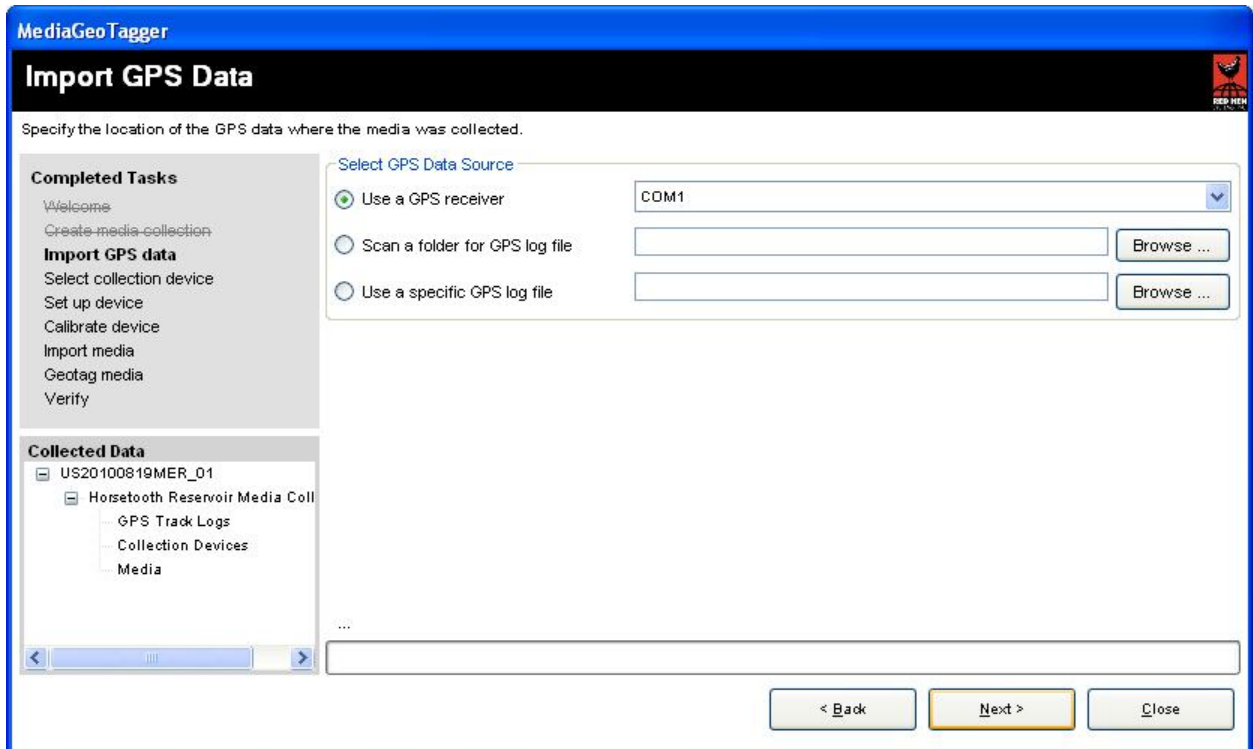
- **Collection Keywords:** These are words you use to tag the media so that others can search for the media more easily. Some people think of keywords as search words. When you enter one or more keywords, they will be assigned to all items in the data collection.
Separate the keywords with a comma or a space. If a keyword consists of two or more words, put quotes around the entire phrase. For example: **Mountains, "Fort Collins", reservoir**
 - **Notes.** Any annotation you want to make about the media collection for further reference.
 - **Project Date.** This is automatically populated.
 - **Project ID.** This is an arbitrary number that will be appended to your project name.
 - **Project Name.** This is an automatically generated name that identifies the project, or set of media, you'll be processing. It uses the country code, date, initials, and project ID.
3. **Important!** In the next step, you will be importing GPS data. Before you continue, decide if you want to use a personal navigation device (GPS unit) to acquire this information – as opposed to a track log already on your computer.
- If you do NOT want to use the GPS unit, click **Next>**.
 - If you **do**, please connect the GPS unit to your computer (wait for the sound).
The GPS unit may ask you: **ENTER MASS STORAGE MODE?**
 - Answer **No**.
 - Click **Next >** to continue.
4. The **Import GPS data** screen appears.

3.5 Import GPS Data

It's time to import the track log files that contain the GPS data. It's time to import the track log files that contain the GPS data. Depending on the GPS unit, track log files may display a variety of extensions, such as: **.gpx**, **.csv**, **.gps**, **.txt**. These logs contain the coordinates of geographic locations.

Note: Results are best if your GPS unit was set to log at 1-second intervals.

1. The Wizard displays the **Import GPS Data** screen.



2. Select the radio button that indicates where MediaGeotagger will get its GPS tracking information:
 - **Use a GPS receiver.** This field will automatically be populated with the correct port number and GPS unit name (the unit you plugged in previously). You may have to select it from the pull-down list.
 - If you cannot find the appropriate port number-device, refresh the screen by clicking **<Back** to go to the previous Wizard screen, and then click **Next>**.
 - Once you return to the Import GPS Data screen, re-click the **Use a GPS receiver radio button** and click the down arrow to select the appropriate port number and GPS unit.
 - A moving green bar appears as the track log file is imported.

Note: Leave the GPS unit connected for all remaining steps that the Wizard displays.

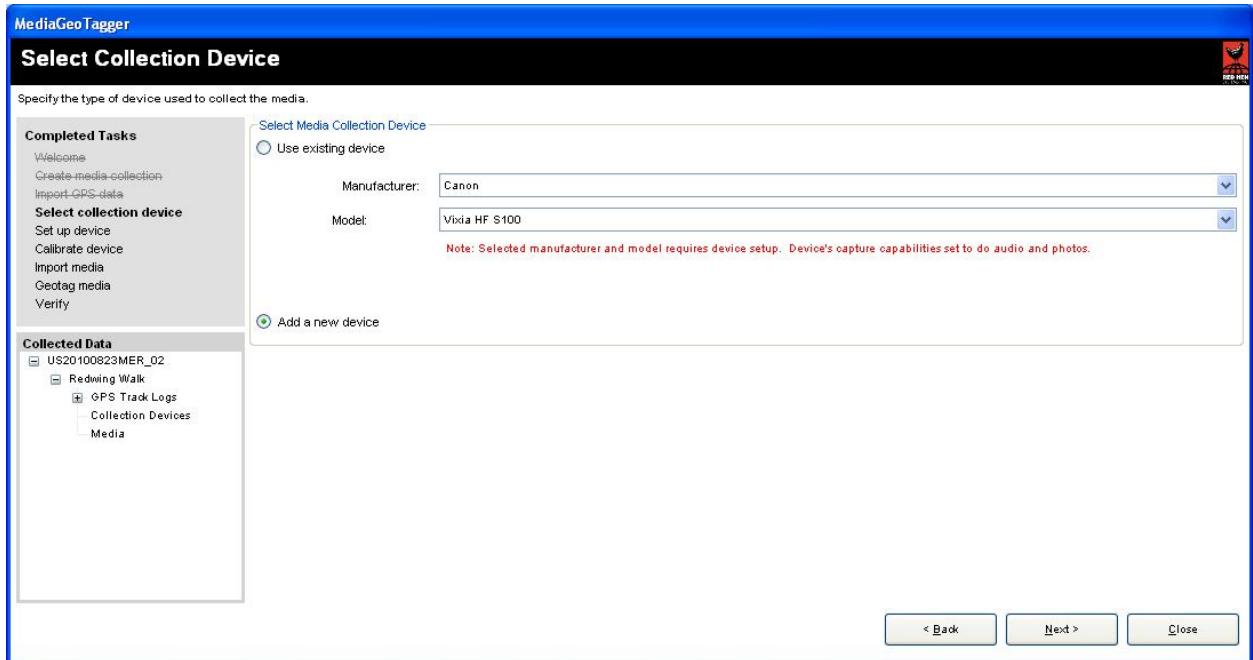
- **Scan a folder for GPS log files.** If you earlier uploaded your track log files to your computer, MediaGeotagger will pull ALL the track logs from the folder you specify.

- Click **Browse** to browse for the folder and click **OK** once you select it.
 - A moving green bar appears as the track log files in the folder are imported.
 - **Use a specific GPS log file.** If you earlier uploaded your track log files, MediaGeotagger will pull the specified log file you select.
 - Click **Browse** to browse for the folder and click **OK** once you select it.
 - A moving green bar appears as the track log files in the folder are imported.
3. Click **Next>**
 4. The **Select a Collection Device** screen appears.

3.6 Select a Collection Device

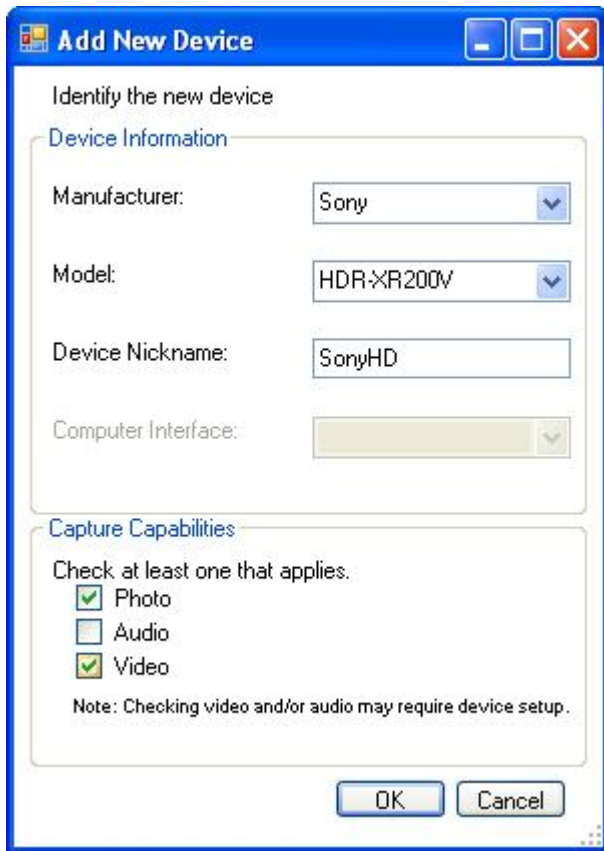
Now it's time to specify the device you used to collect your media.

1. The Wizard displays the **Select a Collection Device** screen.



2. Check to see if your collection device is already defined in MediaGeotagger by selecting the radio button: **Use existing device**.
 - Scroll through the list of **Manufacturers** and choose one.
 - Then scroll through the list of **Models** for that manufacturer and choose one.
 - A note appears telling you whether the device is set up for photo, video, or audio collection. If the information is incorrect, click this link: **Click here to do device setup again**. [Go to Task 3.7](#) to learn how to set up the device.

- If you cannot find your device, select the radio button: **Add a new device**. A new dialog appears allowing you to set up the device.



- Enter the following information.

Device Information

- **Manufacturer and Model.** Type the names of the manufacturer and model.
- **Nickname.** Enter a simple name you prefer to use to refer to the device.

Capture Capabilities

- Check at least one of the checkboxes to indicate the type of media the device collects.

- Click **OK** to return to the Wizard.

- Click **Next >**.

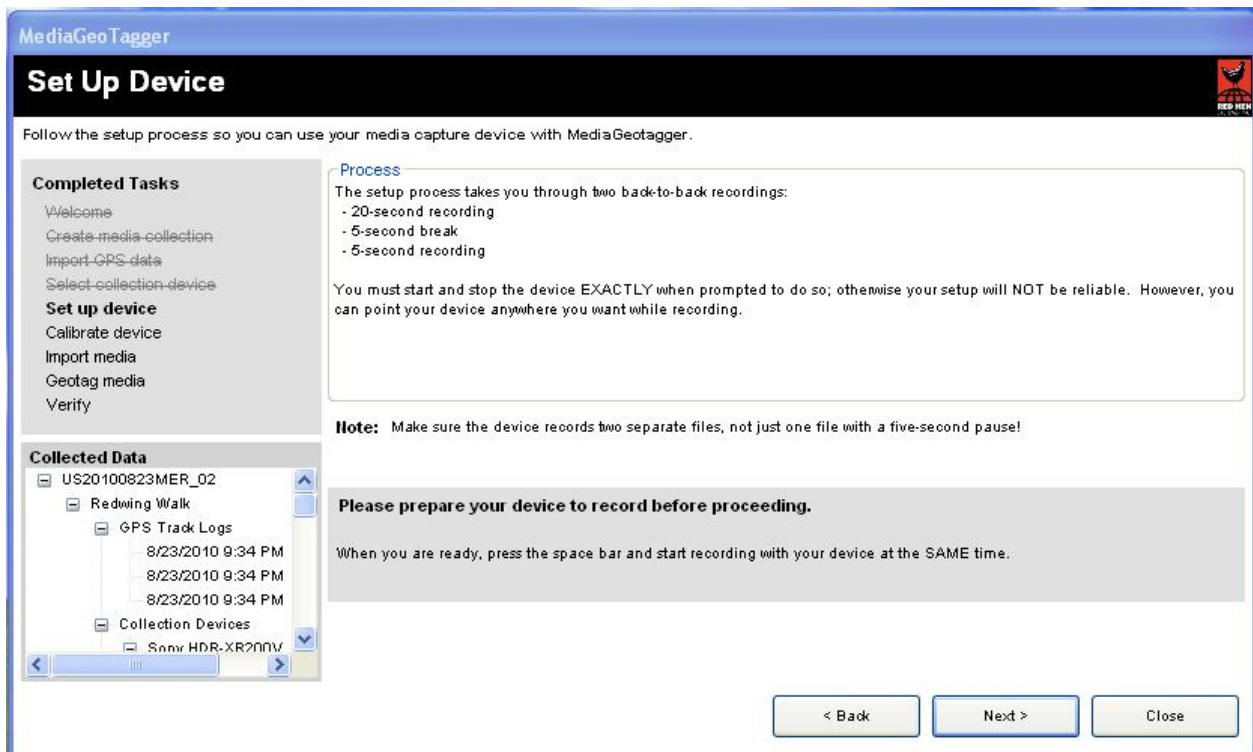
- If you created a new device, the **Set Up Device** screen will appear. [Go to Task 3.7](#) to learn how to set up a new device.
- If you selected an existing device, the **Calibrate Device: Identify Method** screen will appear. [Go to Task 3.8](#) to learn how to calibrate the device.

3.7 Set Up Device

When you add a new video or audio device, you must set it up as well. You can also redo the setup of an existing device if it was done incorrectly. The setup process determines whether the media collection device you used saves a time stamp at the beginning or end of its recording.

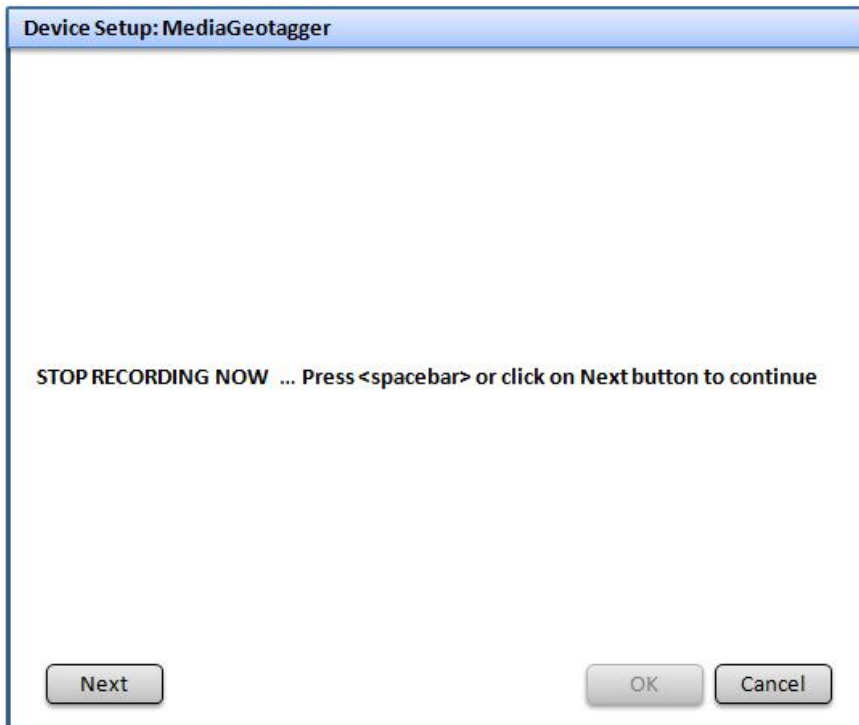
Note: If the device is already set up, or if you used a camera to collect still images, the **Calibrate Device: Identify Method** screen will appear. [Go to Task 3.8](#) to learn how to calibrate your device.

1. The Wizard displays the **Set Up Device** screen.



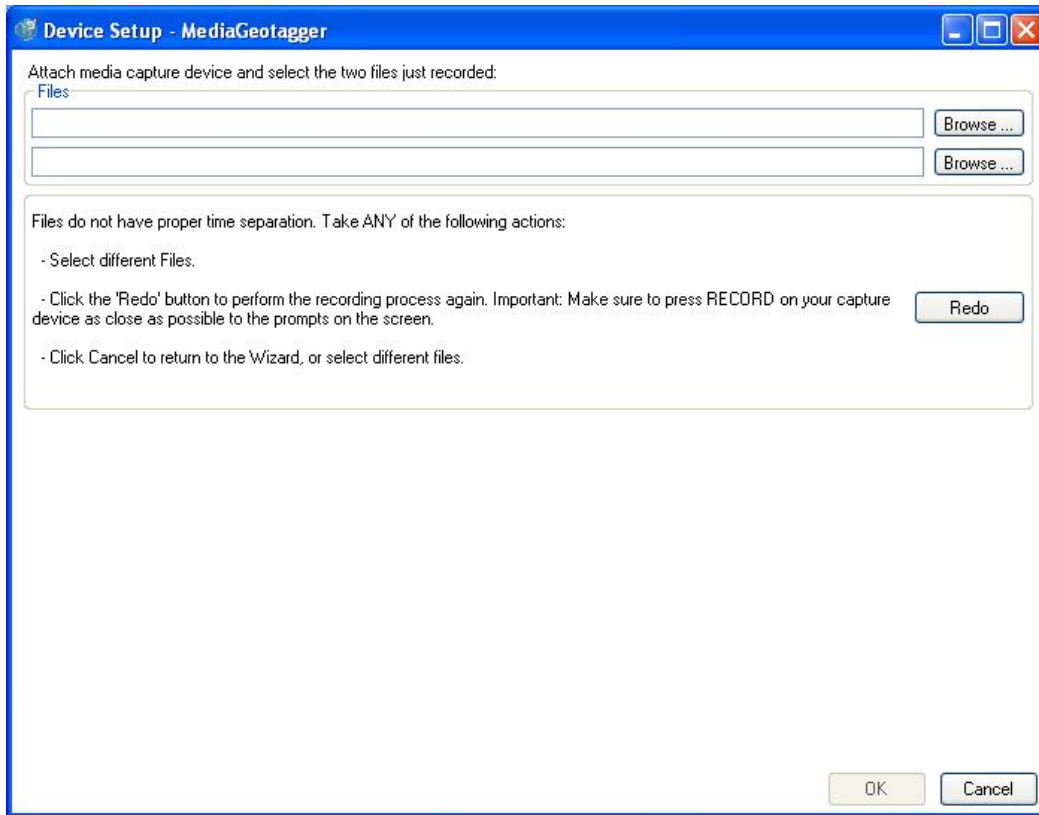
2. Read the instructions on the screen. The setup process takes you through two back-to-back recordings.
 - You must start and stop your device EXACTLY when prompted at the end of the first recording and then turn it on again exactly when prompted for the second recording.
 - Feel free to point the recording device anywhere.
3. Prepare the device to record:
 - Turn it on.
 - Make sure the memory card is in it (if it has one).
 - Make sure the lens cap is off (for cameras).
 - Do NOT connect the media collection device to your computer

4. When you are ready, press the **space bar** on your computer at the same time you start recording, following the instructions as they appear on the screen. MediaGeotagger will count down the seconds for you so you know when to start and stop recording.
5. When the recording process is done, the final screen will appear.



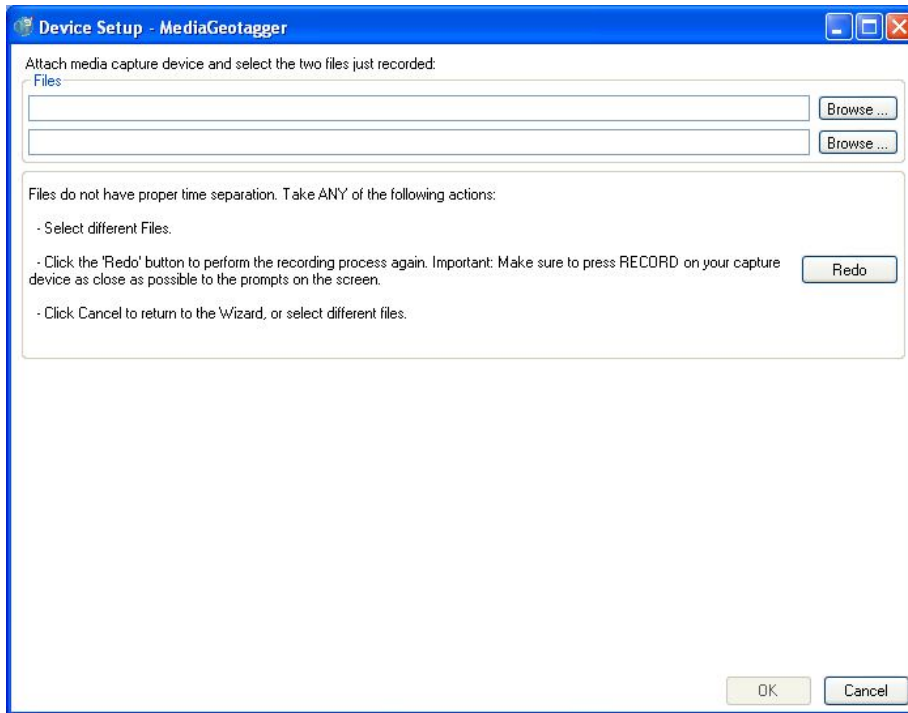
6. Click the **Next** button on the bottom left of the screen.

7. The final setup screen appears.



8. Attach your media collection device to the computer via the appropriate cable.
–OR–
Remove its memory card, put the card in a memory card reader, and attach the memory card reader to the computer with the appropriate cable.
9. Select your media files:
 - Click **Browse** to search through the folders on your device and select the first file you recorded (the 15-second test).
 - Click **Browse** for the next file and search through the folders on your device to select the second file you recorded (the 5-second test).

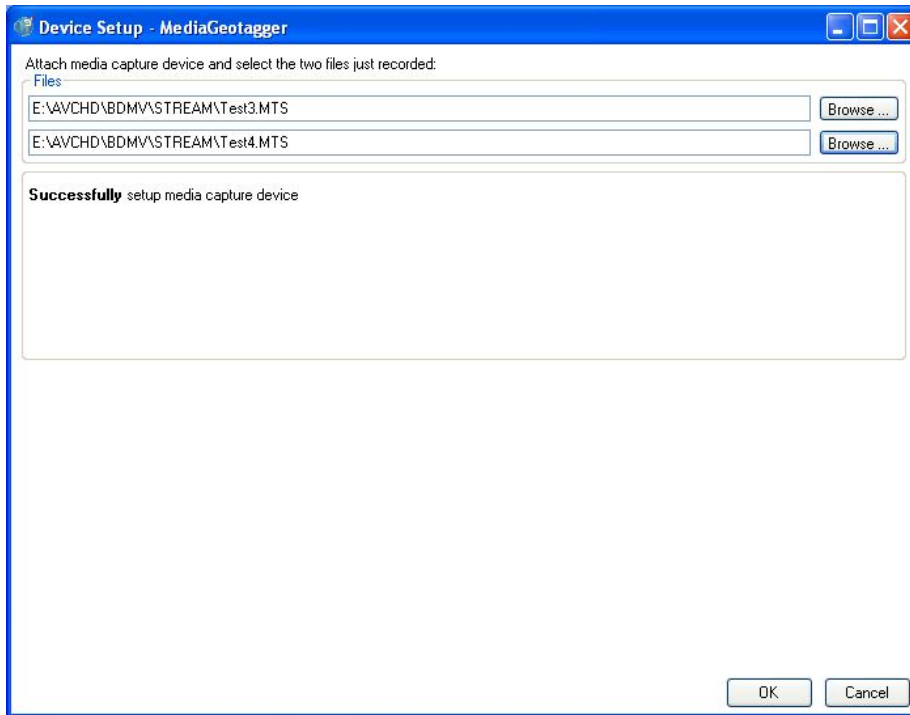
10. If the setup is NOT successful the **OK** button is disabled. This is usually because there was not enough time separation between the two files. An error message lists possible actions to take.



The corrective actions include:

- Select different files. The first file is usually larger than the second.
- Click **Redo**. This lets you repeat the setup process. Make sure to press RECORD on your media collection device as close as possible to the prompts on the screen!
- Click **Cancel** to return to the Wizard.

11. When the setup is successful, a **Success** message appears.



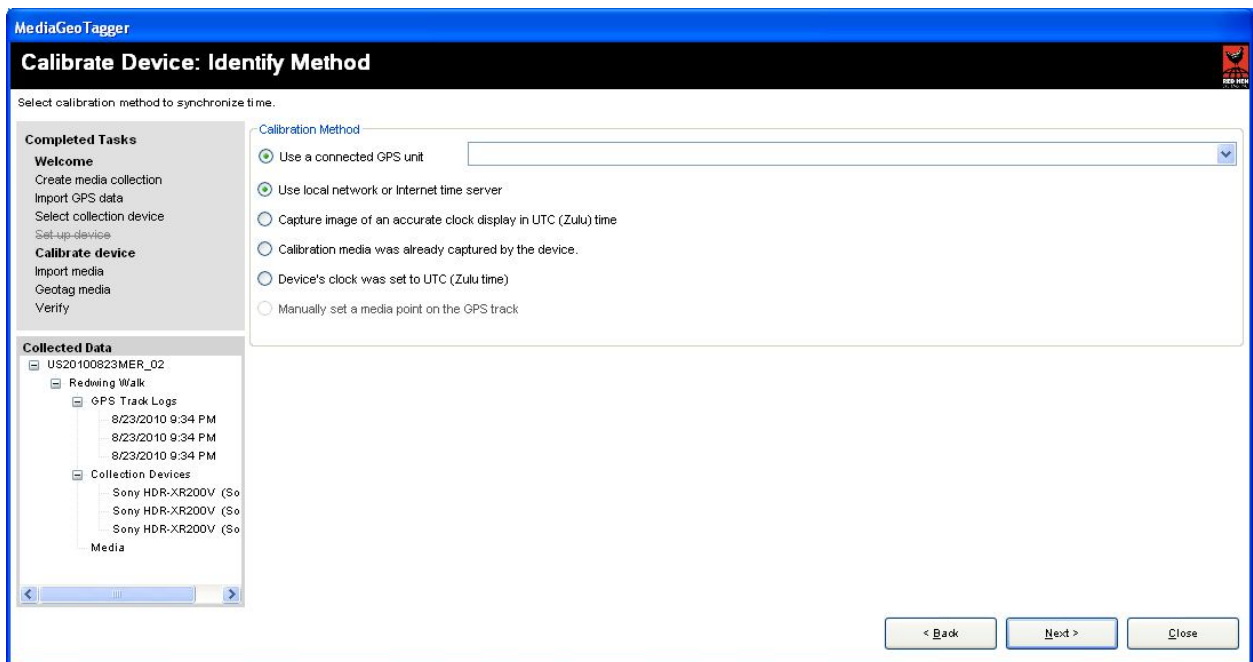
12. Click **OK** to return to the Wizard.

13. The **Calibrate the Device: Identify Method** screen appears.

3.8 Calibrate the Device: Identify Method

Once you set up a device, you must calibrate it. The first step in doing so involves specifying the method of calibration. Accurate geotagging by MediaGeotagger requires the use of UTC time (Universal Time Coordinated), also known as “Zulu Time.” This is a very accurate time based on an atomic clock. Since it is often difficult to accurately set your collection device to UTC time, or ensure that your device was not losing or gaining time when you collected data, the following calibration process lets you perform the calibration after the fact.

1. The Wizard displays the **Calibrate Device: Identify Method** screen.



2. This screen lets you tell the system where to get the time calibration information for synching the times your media was collected with the times in the GPS unit track log. Each option takes you through a slightly different process.
 - **Use a connected GPS unit.** Select this option if you want to pull time information from a GPS unit connected to your computer.
 - **Use local network or Internet time server.** When you select this, the system connects to the Internet and displays the current date and time.
 - **Capture image of an accurate clock display in UTC (Zulu) time.** Select this option if you want to capture an image of a UTC clock display from an accurate device, such as a GPS unit.
 - **Calibration media was already captured by the device.** Select this if you already took a calibration picture showing the UTC date and time.

- **Device's clock was set to UTC (Zulu) time.** When you select this, the system assumes your camera is synchronized with UTC time, so you don't have to take a calibration picture.
- **Manually set a media point on the GPS track.** Select this option if you took a photo of a well-known landmark where you know its location on a map.

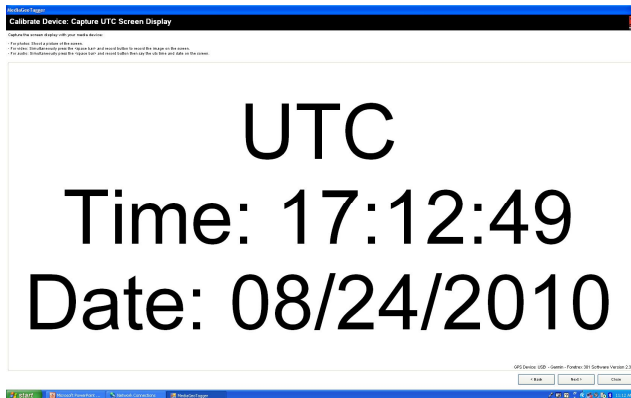
We will now walk you through each of the options.

Note: Make sure you have your collection device ready. You may need to use it, depending on the option you select.

Use a connected GPS unit

Note: Make sure your GPS unit is connected to your computer. If it is not, plug it. Answer "**No**" if this prompt appears on the unit: **ENTER MASS STORAGE MODE?** Wait until all the way points are loaded before continuing.

1. Click the **Use a connected GPS unit** radio button. This allows you to use the very accurate UTC time from your GPS unit.
2. Click the down arrow to see the list of connected units. If your GPS unit does not appear, refresh the screen as follows:
 - Select the **Use local network or Internet time server** radio button.
 - Click **Next >** . As soon as the UTC clock screen appears, click **< Back** to refresh the screen.
3. Click the down-arrow to view the pull-down list of ports and select the correct port number-GPS unit.
4. Click **Next >** . A screen appears with a running UTC clock from the GPS unit.



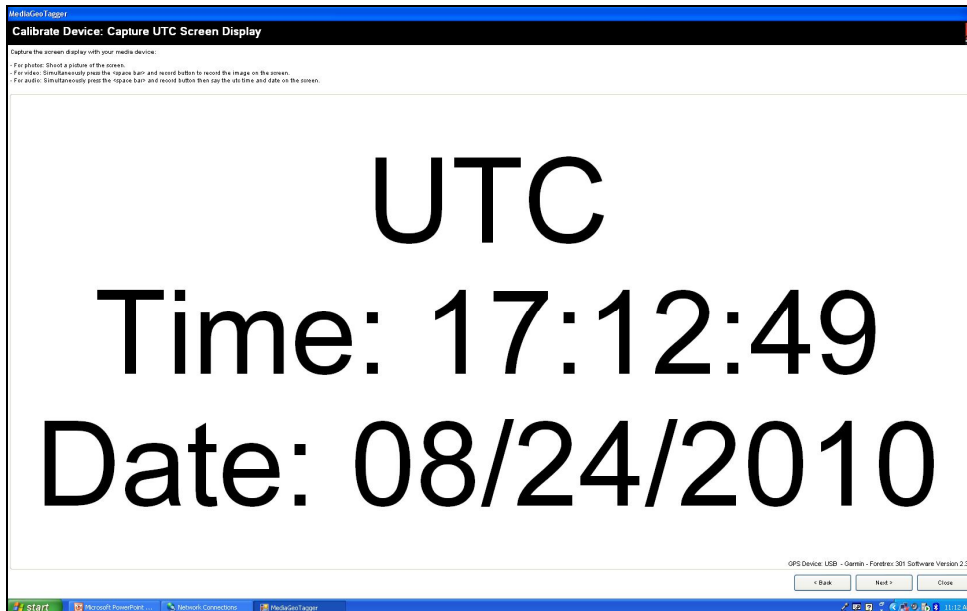
5. Capture the time information with your digital camera, video recorder, or audio recorder.
 - **For photos:** Shoot a picture of the screen.
 - **For video:** Simultaneously press the space bar (long bar at the bottom of the keyboard) and the record button, then stop recording.
 - **For audio:** Simultaneously press the space bar (long bar at the bottom of the keyboard) and the record button, say the UTC time and date that you see on the screen, then stop recording.

6. Click **Next >** on the UTC screen to continue. The **Calibrate Device: Set Time** screen appears. [Go to Task 3.9](#) for instructions.

Use local network or Internet time server.

Note: Make sure you are connected to the Internet and have your data collection device available.

1. Click the **Use local network or Internet time server** radio button.
2. Click **Next >**. A screen appears with a running UTC clock.



Note: If you get an error message, you might be blocked by a firewall, or not connected to the Internet, or the time may not be accurate.

3. Capture the time information with your digital camera, video recorder, or audio recorder.
 - **For photos:** Shoot a picture of the screen.
 - **For video:** Simultaneously press the space bar (long bar at the bottom of the keyboard) and the record button, then stop recording.
 - **For audio:** Simultaneously press the space bar (long bar at the bottom of the keyboard) and the record button, say the UTC time and date that you see on the screen, then stop recording.
4. Click **Next >** to continue. The **Calibrate Device: Set Time** screen appears. [Go to Task 3.9](#) for instructions.

Capture image of an accurate clock display in UTC (Zulu) time

1. Select the **Capture image of an accurate clock display in UTC time** radio button.
2. Click **Next >**
3. The **Capture Clock Image** window appears.



4. Make sure you have a clock that displays accurate UTC time, such as the clock on a GPS unit.
5. Capture the time information with your digital camera, video recorder, or audio recorder.
 - **For photos:** Shoot a picture of the screen.
 - **For video:** Simultaneously press the space bar (long bar at the bottom of the keyboard) and the record button, then stop recording.
 - **For audio:** Simultaneously press the space bar (long bar at the bottom of the keyboard) and the record button, say the UTC time and date that you see on the screen, then stop recording.
6. Click **Next >** to continue. The **Calibrate Device: Set Time** screen appears. [Go to Task 3.9](#) for instructions.

Calibration media was already captured by the device

1. Select the **Calibration media was already captured by the device** radio button. This is useful if you already took a picture of the UTC time when you finished your data collection.
2. The system assumes you already took a calibration picture showing the date and time. The system will ask for this calibration picture during the final geo-tagging process.
3. Click **Next >** to continue. The **Calibrate Device: Set Time** screen appears. [Go to Task 3.9](#) for instructions.

Device's clock was set to UTC (Zulu) time

1. Select the **Device's clock was set to UTC time** radio button. Use this only if you know your device clock was actually set to UTC time when you collected your media.
2. When you select this, the system assumes your camera is synchronized with UTC time, so you don't have to take a calibration picture.

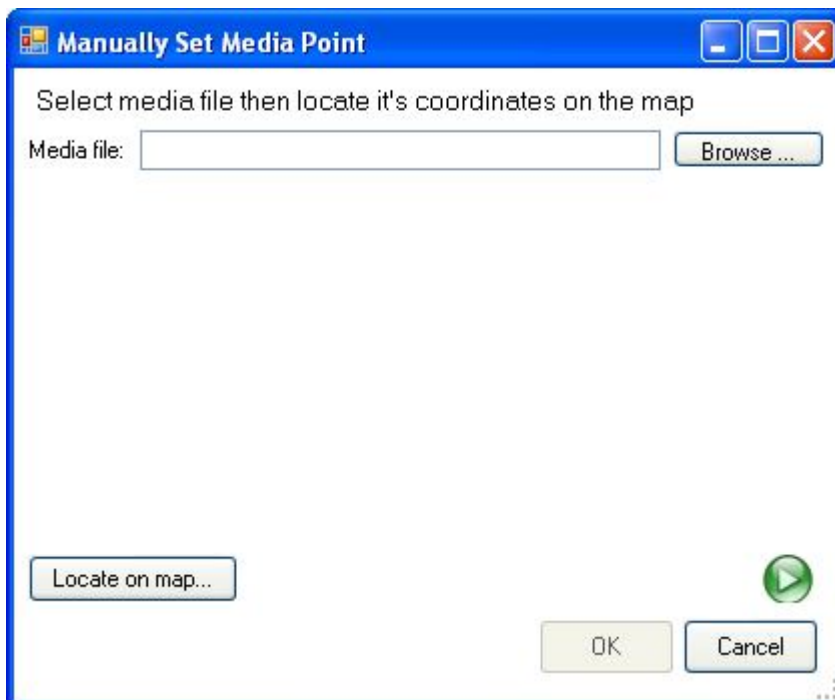
Note: If you're not sure how well synchronized your camera is, we suggest you select one of the first options instead (for example, Internet or GPS unit) so you can take a calibration picture.

3. Click **Next >** to continue. The **Import Data** screen appears. [Go to Task 3.10](#) for instructions.

Manually set a media point on the GPS track

Important! This option only works if you are running MediaGeotagger from within a Red Hen Systems map viewing application (for example, RouteScout).

1. Select the **Manually set a media point on the GPS track** radio button. When you select this, the system assumes you want to use a known location on a map to calibrate the media collection device to UTC time. You can select the media point from a map or from coordinates in a file:
2. Click **Next >**
3. The **Manually Set Media Point** window appears.



4. Click **Browse** to select a media file that identifies the landmark you will be using. When you find the file, click **OK**.
5. The media file now appears in the window—it will be a photo, audio file, or audio file (which you can play).
6. Click **Locate on Map** button. A small window appears with instructions:

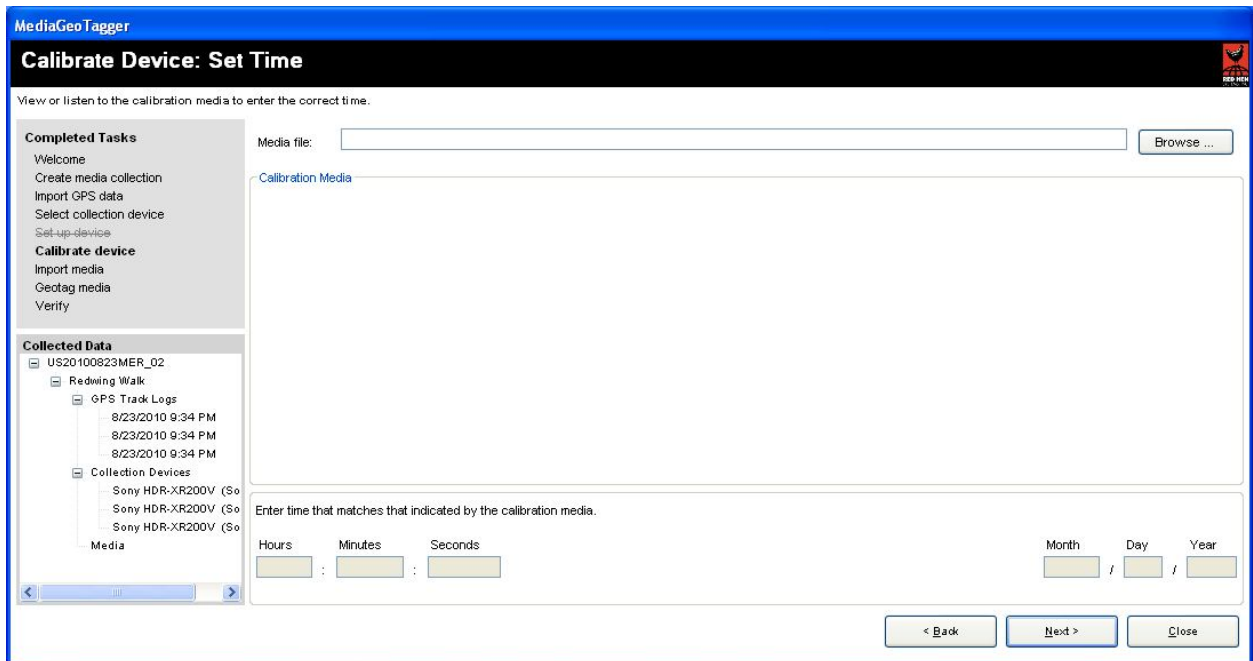


7. Click **Cancel** to close the window.
8. Click the location on the map associated with the media file.
9. Then click **OK**.
10. The **Calibrate the Device: Set Time** screen appears.

3.9 Calibrate the Device: Set Time

The next step in calibration is setting the time, based on the captured time information.

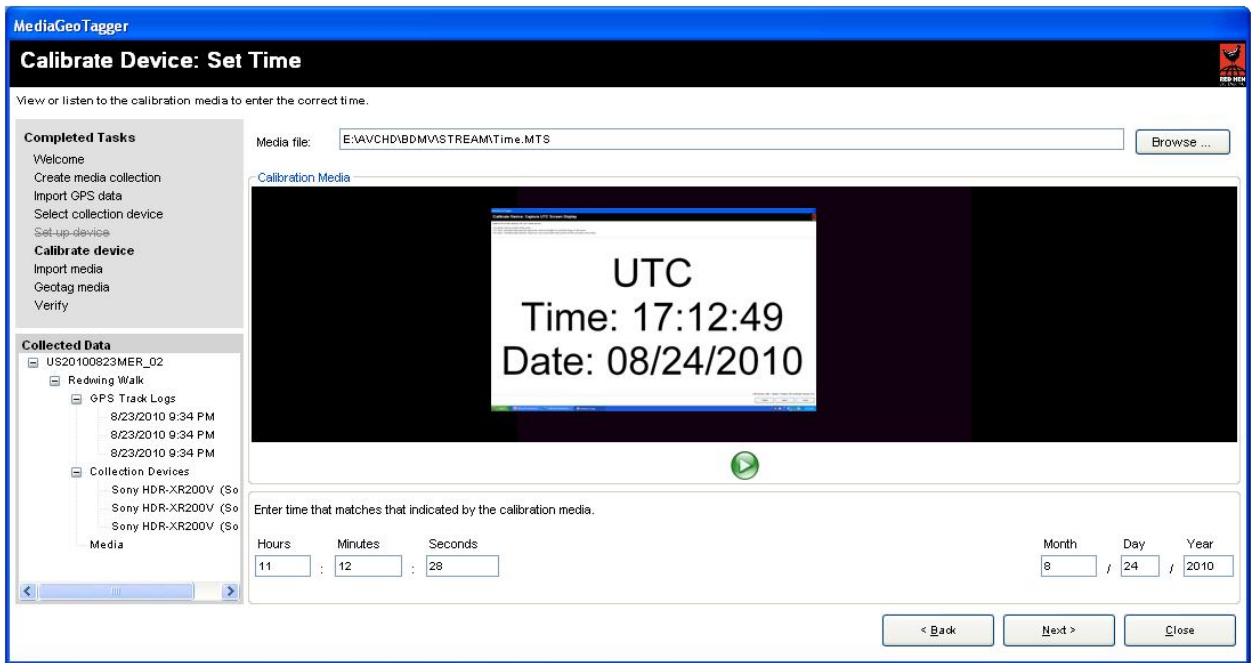
1. The Wizard displays the **Calibrate Device: Set Time** screen.



2. Connect your media collection device to the computer.
–OR–
Remove the memory card from the media collection device, put it into the memory card reader, and connect the memory card reader to the computer.
3. Click **Browse** to navigate through the files on the device or memory card reader until you find the most recent media file—this contains your calibration image, video, or audio file. Select it and click **Open**.

Note: If you cannot upload the media file, it means that you do not have the required codec pack installed on your computer to play that particular audio or video file in Windows Media. You must download the appropriate codec pack from the Internet.

- The calibration media should now appear in the middle of the screen as a photo, video, or sound file.



- At the bottom of the screen, enter the time you see or hear.
 - Use two digits for **Hours**, **Minutes**, **Seconds**. For example: 17:12:298

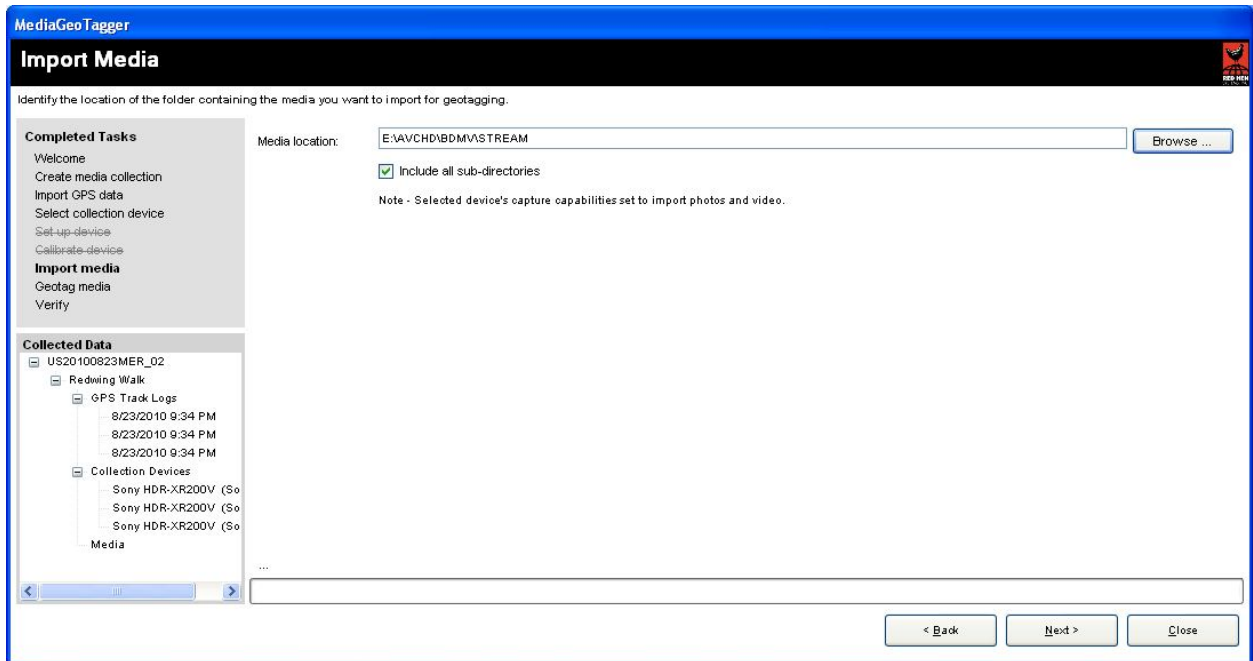
Note: Indicate hours using a 24-hour clock.

 - Use two digits for **Month** and **Day**, and four digits for **Year**. For example: 08/24/2010
- Click **Next >**.
- The **Import Media** page appears.

3.10 Import Media

Now that the system knows all about the collection device, GPS track log, and calibration information, it's time to provide that actual collected files (photo, video, or audio files).

1. Make sure the **Import Media** page is visible.



Important! Make sure your data collection device is connected to your computer

-OR-

Make sure the memory card reader is connected to your computer and the device's memory card is in the reader.

2. Click **Browse** to find the folder where your data collection files are located, then click **Open**.

Note: Make sure to check the checkbox if you want to import data files from all subdirectories.

3. Click **Next >**.
4. The names of the media files appear at the bottom of the screen, along with a moving progress bar as the media files are imported. This could take awhile for video files, so be patient.
5. When the bar stops moving, the import process is done. These media files will be stored on the computer in a subfolder called **Copies of original media**, beneath the project folder you defined earlier.

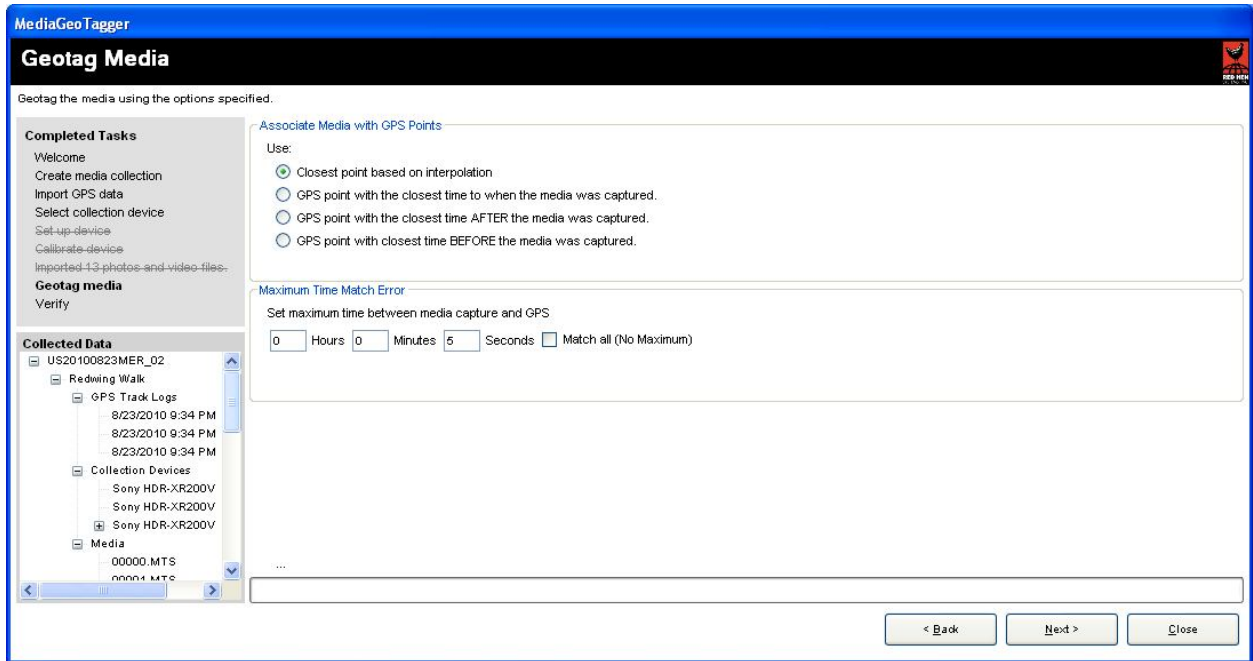
Note: Make sure to return the memory card to your collection device if you removed it.

6. Click **Next >** and the **Geotag Media** screen appears.

3.11 Geotag Media

With your media now on the computer, along with its GPS and calibration information, MediaGeotagger can geotag the media files.

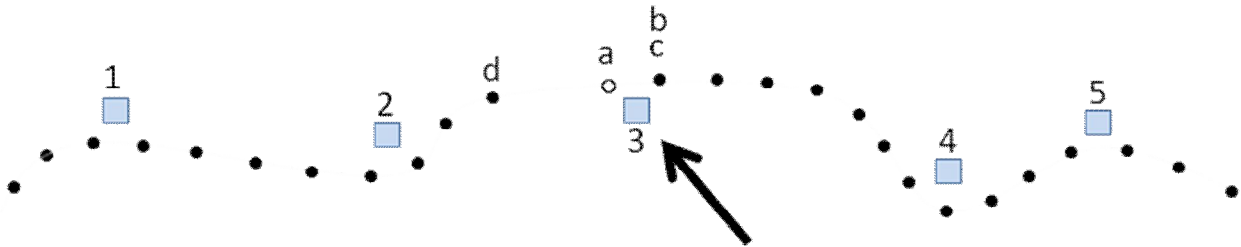
1. The Wizard displays the **Geotag Media** screen.



2. This screen provides various time-matching options so the system knows how to match up the media with actual geographic locations, based on the times the media was collected and the GPS track points from the track log.
 - **Closest point based on interpolation.** System interpolates to determine the most likely location when the photograph was taken. Interpolation is useful in the following situations:
 - The travel path is not very erratic.
 - The travel path is erratic AND the GPS track log is very fine grained with respect to the rate of travel (for example, walking with a 5-second GPS point granularity).
 - Many photographs were taken; otherwise some photos will end up being geo-tagged to the same location.
 - **GPS point with the closest time to when the media was captured.** Find the GPS point closest to the time when you collected the media.
 - **GPS point with the closest time AFTER media was taken.** Find the GPS point closest to, but AFTER the time you collected the media.
 - **GPS point with the closest time BEFORE media was taken.** Find the GPS point closest to, but BEFORE the time you collected the media.

Note: The “before” and “after” options are preferable when there is a secondary tie between the camera and the GPS unit. They work best in situations where you can only take track log points manually and force the GPS unit to take a point when a photo is taken.

3. If those options seem a bit confusing, here’s an illustration that shows the set of GPS points (**black dots**) representing your travel path, with **blue squares** representing where you took photos. The photo of interest is #3. Labels a-d show the which GPS points get associated with photo #3, depending on the option selected.



- a. **Closest point based on interpolation.** There was no real point here before interpolation.
 - b. **GPS point with the closest time to when the media was captured.**
 - c. **GPS point with the closest time AFTER media was taken.**
 - d. **GPS point with the closest time BEFORE media was taken.**
4. The screen also lets you enter the **Maximum Time Match Error** so the system knows what media, if any, to ignore. In other words, if media was collected at a time greater than the value you specify, that media will be ignored. Enter time in hours, minutes, and seconds.

For example, suppose you wanted the system to ignore any photos taken more than 10 seconds after the GPS unit took a sample point. You would enter 00-00-10.

Note: Be aware of how the system treats special cases:

- **00-00-00:** The system will geotag all media, even if it has no real relationship to GPS data.
- **Hours value greater than 24:** The system will display a warning message, since few track logs span an entire 24-hour period. However, there may be times where you need to enter a value greater than 24 because the time calibration or the collection device was way off, and you need a way for the system to correct for this.

5. Once all your time information is entered, click **Next >**.
 - A progress bar appears as the media is geotagged.
 - Once geotagging is complete, a small **Add Media** window appears with an hour glass, indicating that the geotagged data is now being imported.

Important! Please wait until the window disappears. This can take awhile with videos. However, Do NOT click **Close**.

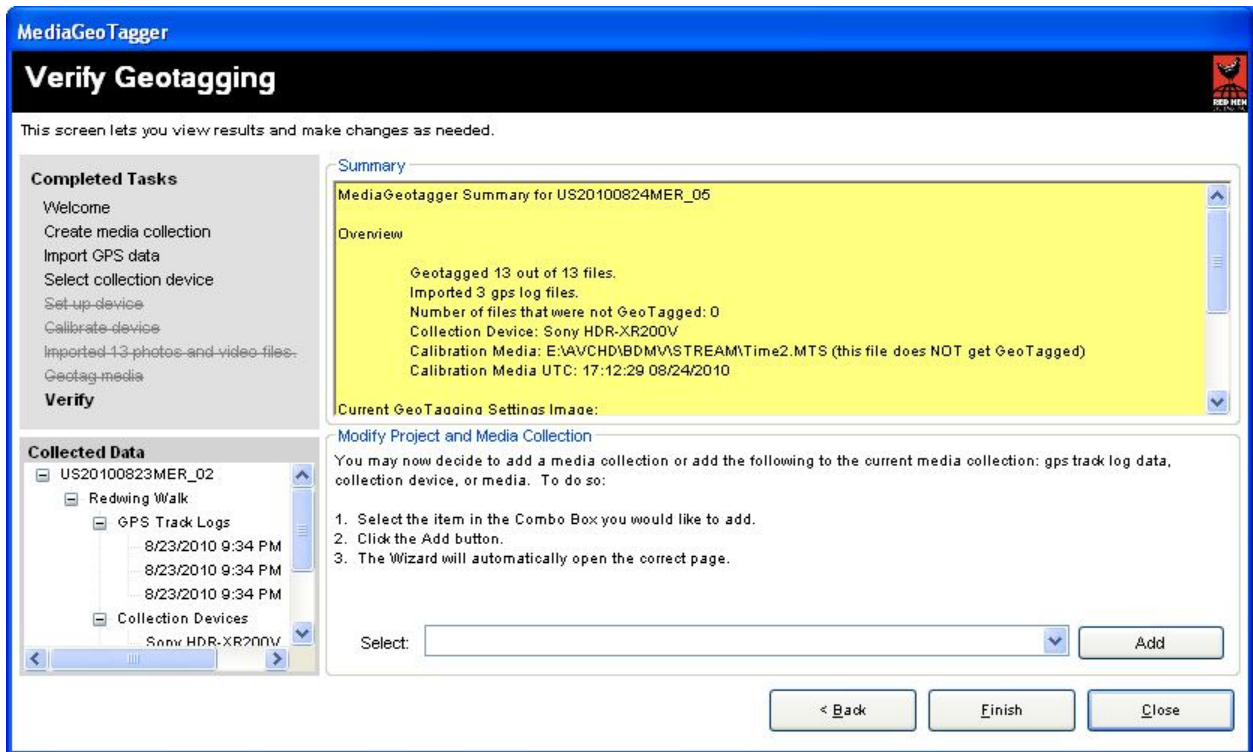
We also recommend you **do not** perform any other tasks on your computer while the import is occurring.

6. Once the files are geotagged, a smaller window appears as the geotagged files are imported to the project folder. The window indicates how much time remains for the import to complete.
7. When the import completes, click **Next >**.
8. The **Verify Geotagging** screen appears.

3.12 Verify Geotagging

The Verify Geotagging screen is a summary screen that provides information about the geotagging process.

1. The Wizard displays the **Verify Geotagging** screen.



2. The **Summary** area of screen displays this useful information:
 - **Overview.** Shows you how many media files were successful geo-tagged with GPS information, as well as how many were not. It also lists the calibration file (not geotagged) and time.
 - **Current Geotagging Settings.** Indicates the method you selected for geotagging and the maximum time match error.
 - **Project Location.** Provides the full pathname to the folder where all the original and geotagged media is stored, along with the track logs. Also provides the full pathname to the project file. This file contains information about the project, including its name and the location of its original media files, geotagged files files, and track log file(s).
3. The **Modify Project and Media Collection** area of the screen allows you to add more information to your project before you finish. The **Select** pull-down list at the bottom of the list lets you specify any number of items to add to the current project:
 - **Media Collection.** Add another media collection to the project.
 - **GPS Data.** Import another track log.

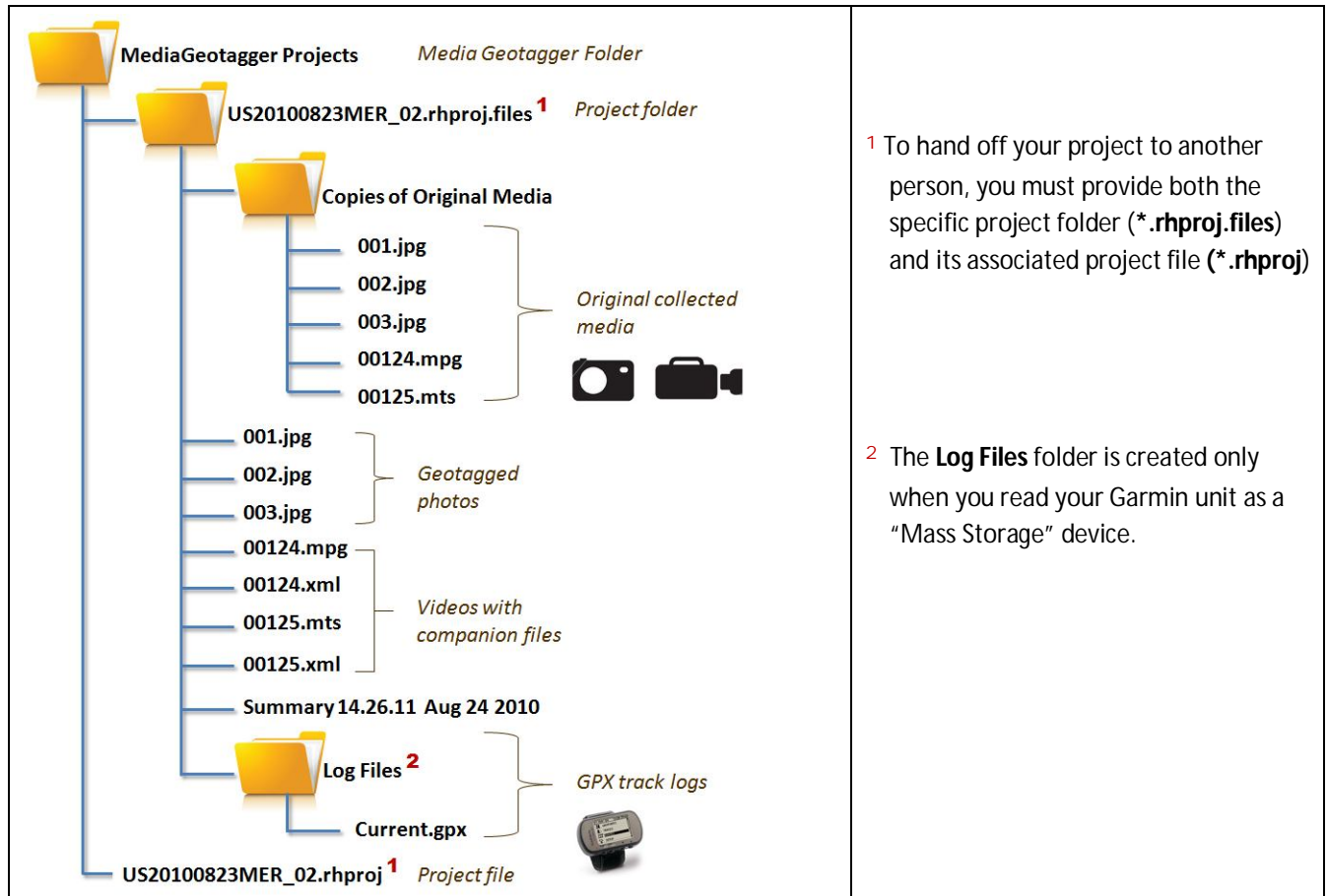
- **Collection Device.** Define another collection device.
- **Media.** Import more media files.

Once you have selected an item, click **Add**. The Wizard will automatically open the correct screen so you can continue.

4. If you are not sure if you want to add anything, but think you might later, click **Close**. This saves everything you've done so far. The next time you start MediaGeotagger and specify the current project, the **Verify Geotagging** screen will open so you can add more items.
5. If you are know you are done and do not want to add any more items, click **Finish**. You will exit MediaGeotagger.

3.13 Explore the Project Directory Structure

The project you created and all its data now has a structure similar to the illustration below:



- ¹ To hand off your project to another person, you must provide both the specific project folder (*.rhproj.files) and its associated project file (*.rhproj)
- ² The **Log Files** folder is created only when you read your Garmin unit as a "Mass Storage" device.

Name	Description
MediaGeotagger folder	This is the "master" folder beneath which all MediaGeotagger project folders exist.
Project folder (*.rhproj.files)	This is the folder containing all files and subfolders associated with a particular media collection and project.
Copies of Original Data folder	This subfolder contains the original media you collected with your media collection device.
Geotagged media	These files have the same names as those in the original data folder; however, all these files are geotagged. The .xml companion files (for video) support uploading to legacy software
Summary file	This file contains the information displayed on the Verify Geotagging screen at the end of the geotagging process.
Log Files folder	The subfolder contains the *.gpx track log files from your GPS unit (if you read the unit as a Mass Storage device).
Project file (*.rhproj)	This is a special MediaGeotagger file that contains metadata about the project, such as the location of its original media, tracklog, and geotagged media.

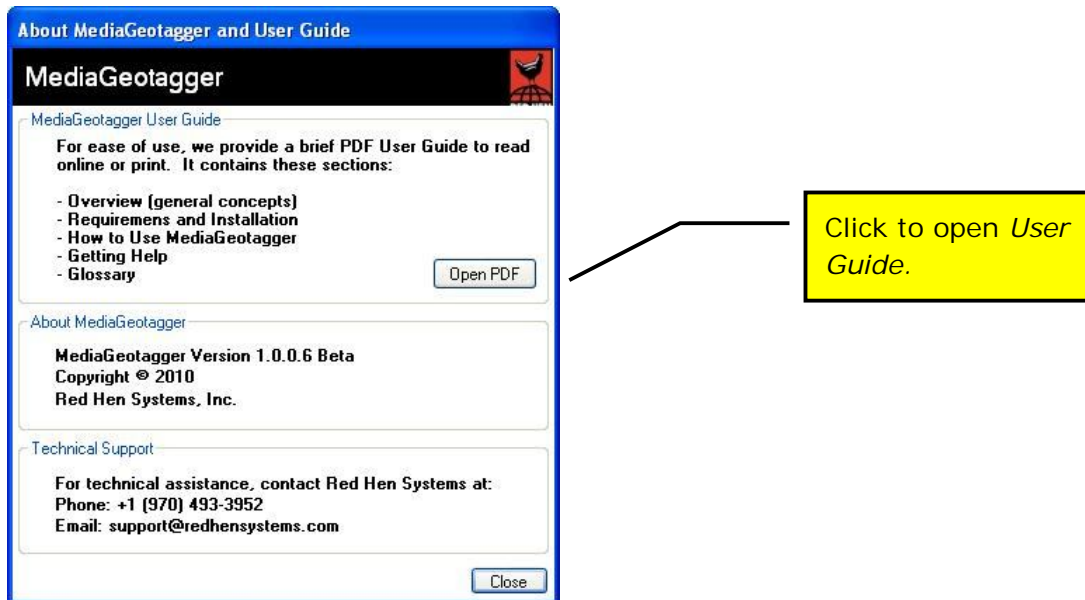
4 Getting Help

This section helps you figure out what to do when you have any problems.

4.1 Read the Manual

When you first encounter a problem, make sure you performed the task correctly. A good way to check is to find the task in the manual and read the steps for performing it. If you need another copy of the manual, here's what to do.

1. Click the About **MediaGeotagger and User Guide** link in the bottom left corner of the MediaGeotagger Welcome screen.
2. An **About** dialog appears.



3. Click **Open PDF**. You are then prompted to either save or open the file. If you plan to print the user guide, first save it on your own system.

4.2 Trouble Shoot

Occasionally, unexpected results occur. So, if you read the manual and are still not sure what to do, try looking through these troubleshooting tips.

Problem: The system cannot geotag all your points.

Possible Cause	Possible Resolution
You used more than one GPS unit while taking pictures.	Make sure the GPS unit you connect to the system is the one you used while taking pictures.
You entered an incorrect date and time for your calibration media.	Return to the Set Time screen and make sure the date and time match your calibration media.
You stood in the same place and took a lot of photos	The GPS unit tags all the photos with the same GPS information.
You took photos or videos both inside and outside	The GPS unit tags all the indoor media with the same GPS information as the last outdoor media collected.

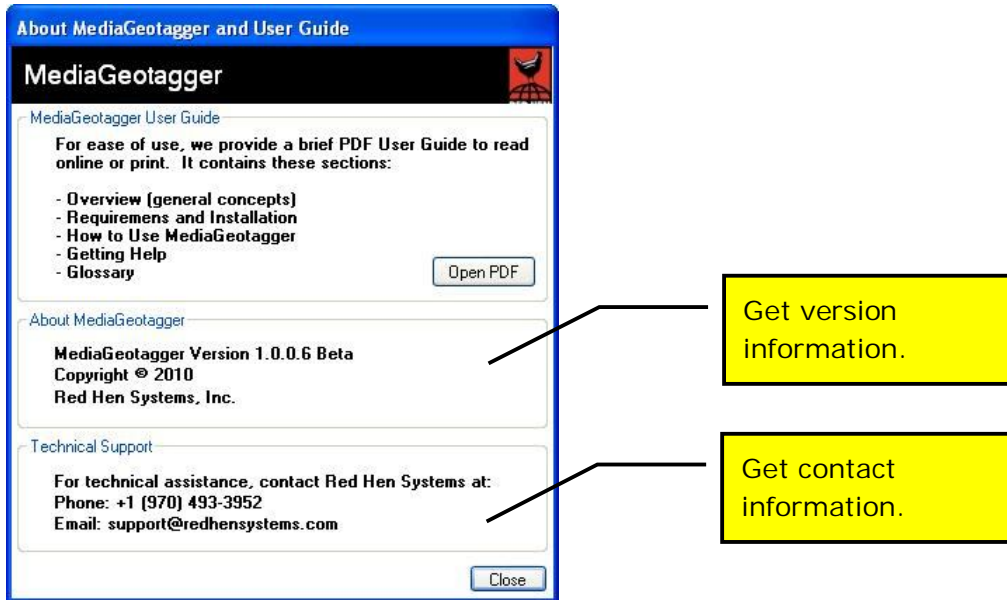
Problem: Few photos are geo-tagged, resulting in few points on the Map Viewer.

Possible Cause	Possible Resolution
Your GPS unit lost satellite connection during your travel path, resulting in only a few points being georeferenced.	<p>Open the track log file to verify the number of GPS track points. This file is stored under:</p> <p>Media Geotagger Projects\[proj_name].rhproj.files\Log Files</p> <p>If the number of track points is small, one of the following occurred:</p> <ul style="list-style-type: none"> ▪ Your satellite connection was poor. You need to click <Back to return to the Geotag Media screen and increase the maximum error time to accommodate the loss of connection. For example, allow for a 10 minute error, rather than a 10 second error. That way, if the GPS unit was only picking up satellite signals every 10 minutes, rather than 10 seconds, you'll get better results. ▪ You set up your GPS unit to track at too great an interval. We recommend tracking at 1-second intervals for best results.
You had poor satellite connection that only allowed for track points every 10 minutes or so.	Change your maximum error time to accommodate your poor connection. For example, allow for 10 minutes, rather than 10 seconds.

3.3 Contact Support

If you can't figure out the problem yourself, don't panic—that's what the support team is for. Call or email the support team with your issue.

1. Click the **About MediaGeotagger and User Guide** link in the bottom left corner of the MediaGeotagger Welcome screen.
2. An **About** dialog appears.



3. Read the information under **About MediaGeotagger** for the version number, since the support team will need this.
4. Read the information under **Technical Support** and contact us at the phone number or email listed. The team is here to help!

Appendix A. Glossary

This appendix contains all terms the user must become familiar with to successfully use MediaGeotagger.

Term	Description
epoc	GPS point (latitude, longitude, altitude, and time)
extent	The rectangular boundary around a specific part of a map. The boundary is defined by the latitude and longitude coordinates of its upper-left corner and lower-right corner.
Geotag	The act of assigning GPS information (latitude, longitude, and time) with data.
GIS	Geographic Information System. This is an information system for capturing, storing, analyzing, managing and presenting data which are spatially referenced.
GPS	Global Position System data includes location (latitude, longitude) and date/time information.
GPS receiver or GPS unit	This is a device calculates its position by carefully timing the signals sent by the constellation of GPS satellites high above the Earth.
GPX	File format for Garmin points of interest and other GPS records.
Key words	
Map Viewer	The Red Hen software product that displays a map, along with photos or videos associated with specific locations on the map.
MediaGeotagger	Red Hen software tool that associates GPS information with media files (photos, video, and audio)
RouteScout	The Red Hen software product that plugs into FalconView. It lets you load media into a map and view/listen to media associated with locations on the map or along a particular route.
thumbnail	A small image of a photo or video.
Travel path	The path you followed while walking, driving, flying, or sailing.
track log	A file that contains a list of all the points a GPS unit picked up during your travel path.
XIF header	EXIF header is a standardized header added to a photo file (JGP or RAW format). It contains information such as date and time the picture was taken, shutter speed and aperture or whether the flash was used.