Hand Mouse Movement Users Manual

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Starting the Application:

If the application is installed on the computer you can run the application by going to Start→Programs→Hand Mouse Movements.
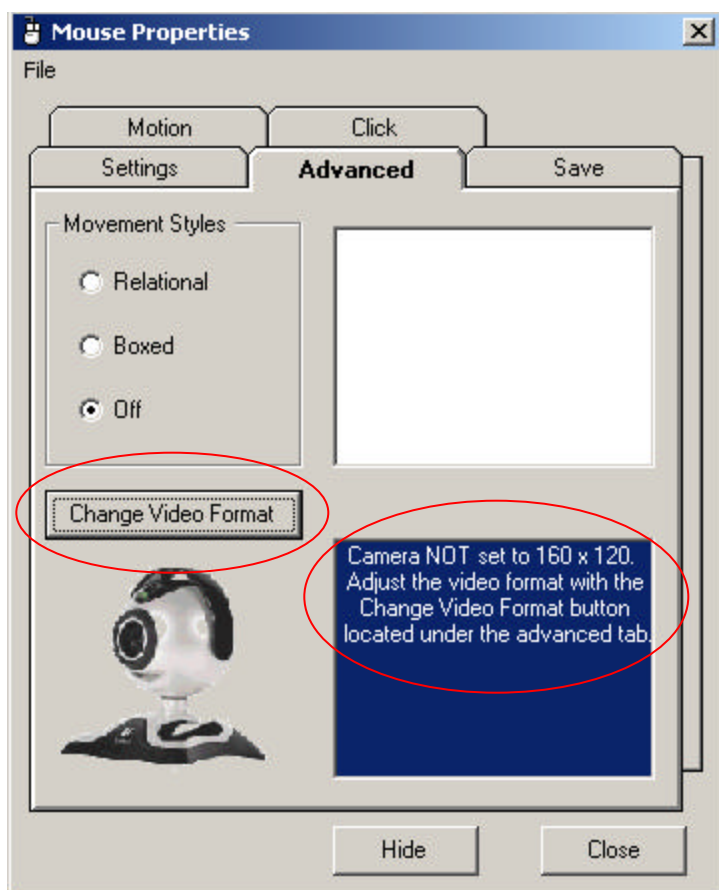
If the application is not installed please refer to the installation directions.

A third option to run the program would be to download the source code and run the application using the visual basic program or running the executable.
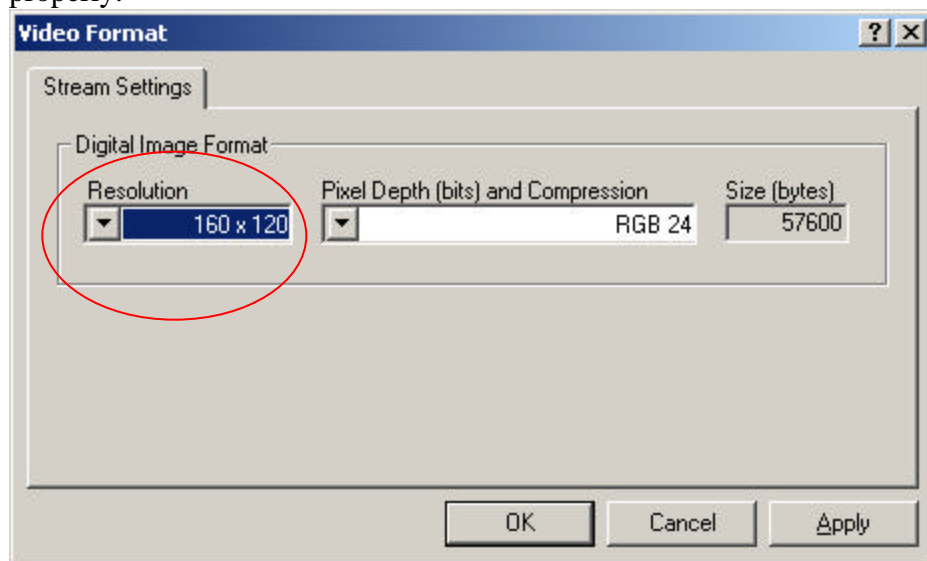
Note there are three main steps you must do to get the application working. You must set up the web camera, calibrate the light and hand settings, and select a movement routine. Please refer to the "Setting Up the Web Camera", "Calibration", and "Movement Styles" sections of the user manual for specifics on how to use the application.

Setting Up the Web Camera:

The first thing that should be done when opening the program is to determine if the video camera format is set to 160 x 120. The application will inform you in a blue box if the video format is not set correctly. To set the video format click the "Advanced" tab and click the "Change Video Format" button.
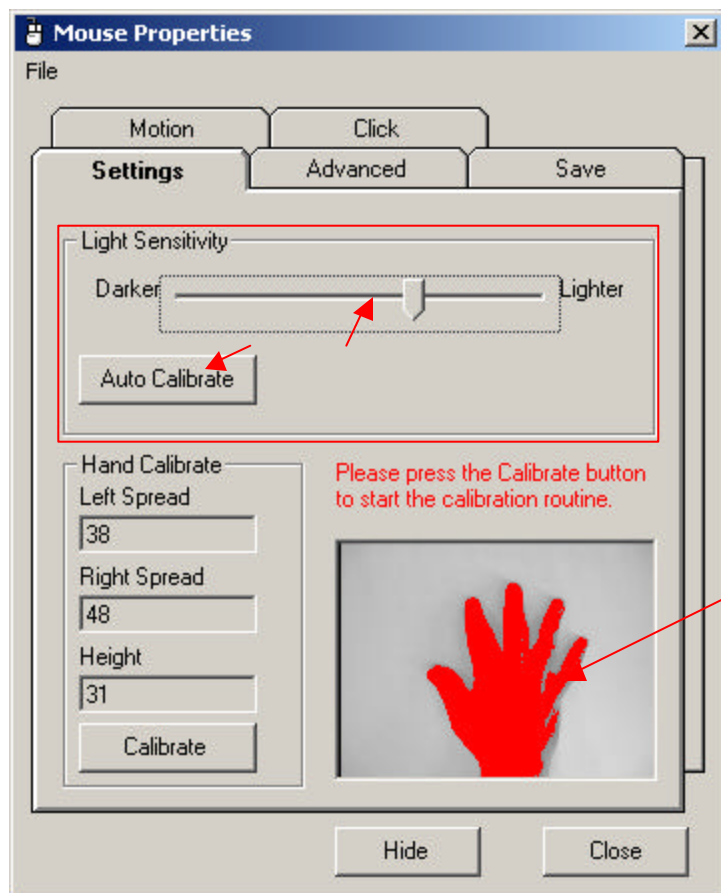
The following dialog box should appear. Select the resolution setting of 160 x 120 and then click "Ok". After you have completed this tasks the application should start to receive video pictures. If you are still not receiving a video feed check to make sure your camera is installed properly.

Next adjust your camera so that the frame of the web camera is pointing at the white background. After you have setup your camera you now need to calibrate the light and hand settings. Please refer to the calibrate section of the user manual for directions.
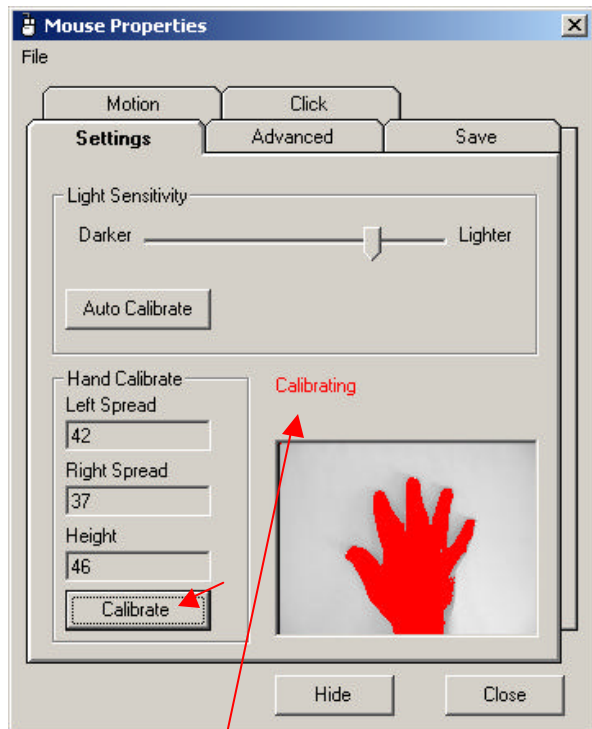
Calibrating:

Click the settings tab and locate the light sensitivity frame. Click the "Auto Calibrate" to adjust the light sensitivity automatically. The auto calibration method is very primitive so you may need to manually adjust the light setting using the slider bar located above the "Auto Calibrate" button.
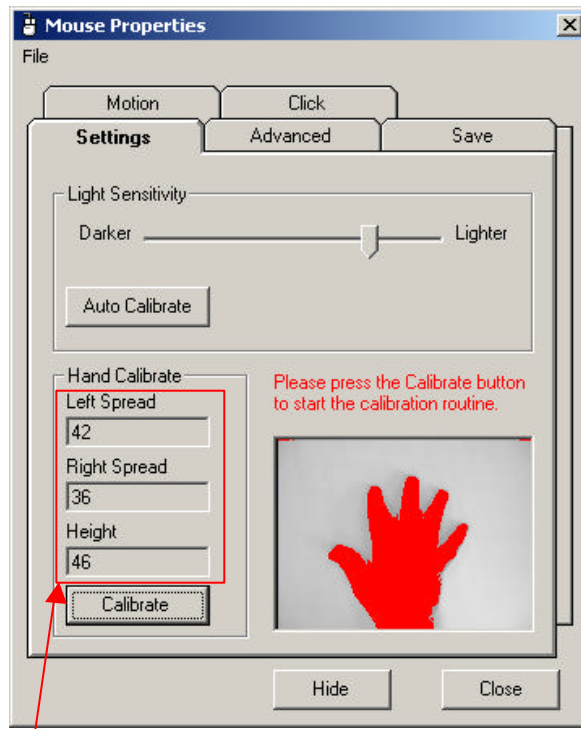

When you place your hand in the camera's view the red parts of your hand demonstrates how much of your hand will be picked up by the web camera based on the current light setting.

After you have adjusted the light settings you need to calibrate your hand size. To calibrate your hand size place your hand in the cameras view. Spread your hand out as far as you can. Click the "Calibrate" button located in the bottom left corner of the tab. Hold your hand steady until the process is finished.
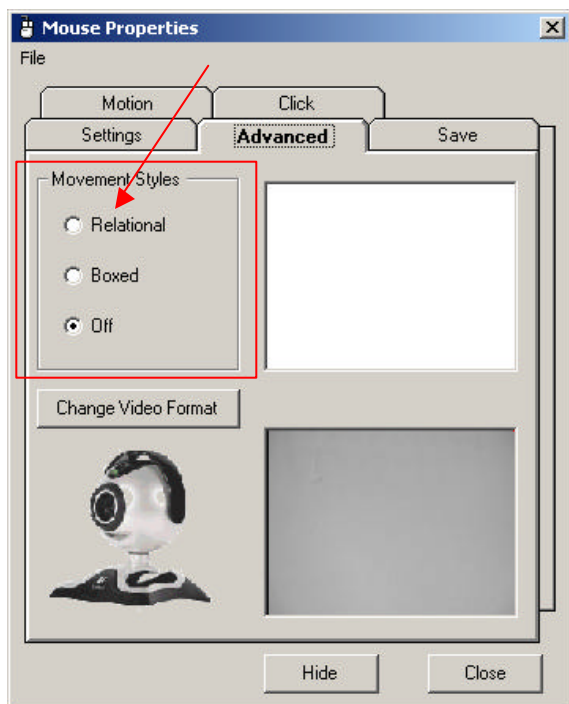

Hold your hand steady until the calibrating message disappears.

If your numbers don't range between 30 to 70 you may want to try calibrating your hand again. If you continue to get faulty values try readjusting the light settings. The better the calibration the more responsive the application will be.
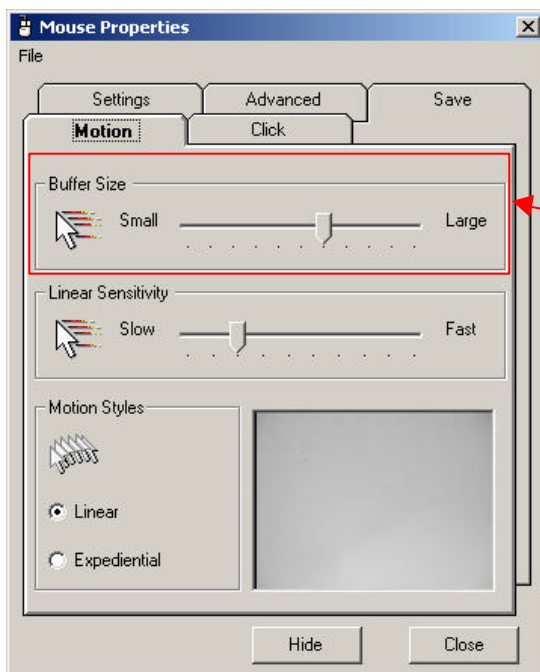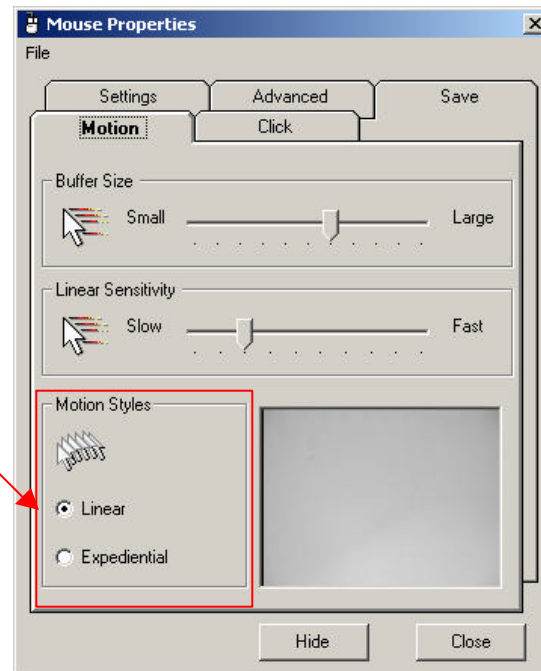
Movement Styles:

After you set the light settings and calibrated your hand you are ready to go. Your settings will be saved if you close the application. You may save more than one persons settings by going to the save tab. Please refer to the "Save Personal Settings" section of the user manual for more specific directions. To start one of the movement routines click the advanced tab select the "Relational" or "Boxed" movement routine. Note each time you start the application you have to manually start the movement routine by going to the "Advanced" tab. Also note the "Relational" movement routine is what most of the other settings in the program refer to. The "Boxed" movement routine is a primitive method that was kept around for demonstration and experimentation purposes.
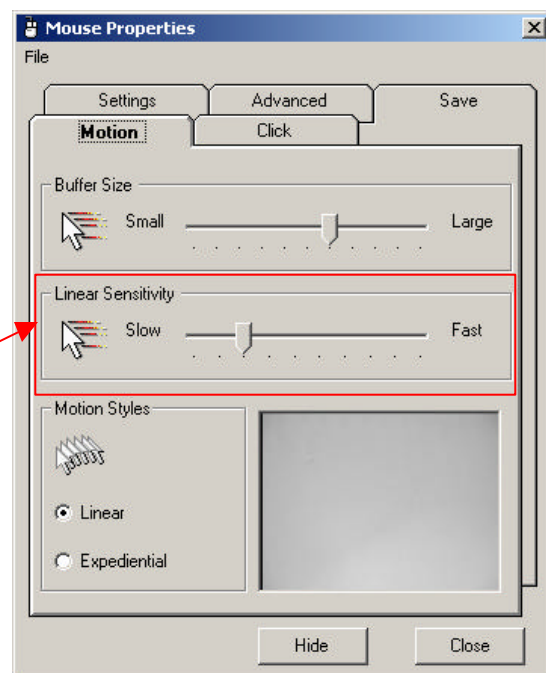
Motion Settings Tab:

The motion tab has three main settings the motion styles, buffer size, and linear sensitivity.

There are two motion styles to select the "Linear" setting which moves the mouse in relation to the linear sensitivity and the "Expediential" setting which move the mouse in an expediential format.   For example if you move three pixels to the left and the linear sensitivity is set to two you would move four pixels. But if you used the expediential settings you would move three squared which would be nine pixels. Note that the linear movement method works the best.

The buffer size settings depicts how fare the mouse must move before the linear or expediential algorithm kicks in. All movement is measured in pixels. Movements of the hand less than buffer size will move in a one to one relation of pixels. Movement of the hand over the buffer size will move in accordance to the motion styles selected.

The linear sensitivity is the setting for how many times in relation to the pixels change you want the mouse to move. For example if you set the linear sensitivity to five and you move the mouse ten pixels the mouse will move fifty pixels on the screen. I would recommend setting this setting to two.

Mouse Clicking:

The Hand Mouse Movement application supports three click when using the relation movement method. The following diagrams show how to perform these clicks with basic hand movements.

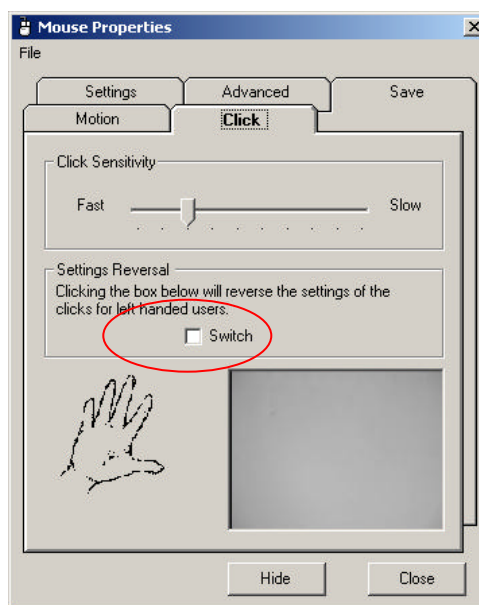To **Left Click** just extend the thumb. To Double click keep the thumb extended.
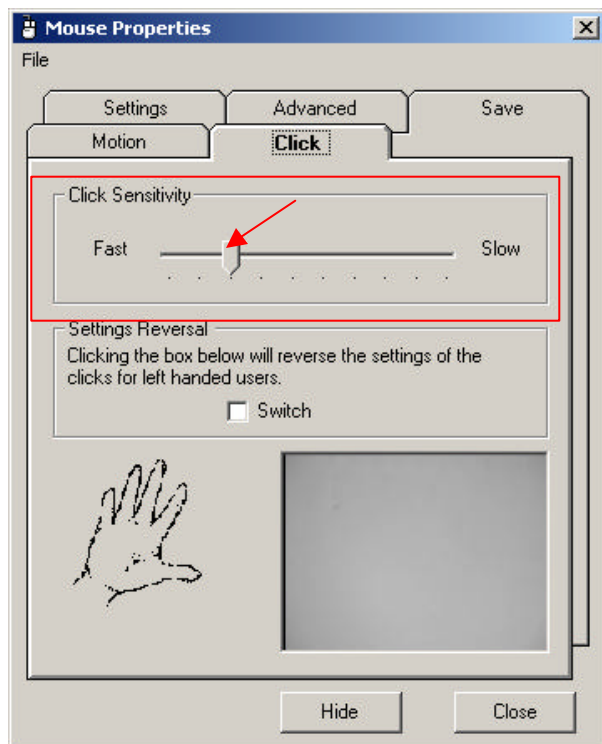

To **Right Click** just extend the pinky.

For a **Mouse Down** close you hand. For a **Mouse Up** open up your hand and then close it again.

The application also supports left handed users. If you are a left handed users just check the "Switch" box located under the click tab. Note you will have to recalibrate your hand settings after checking the "Switch" box.
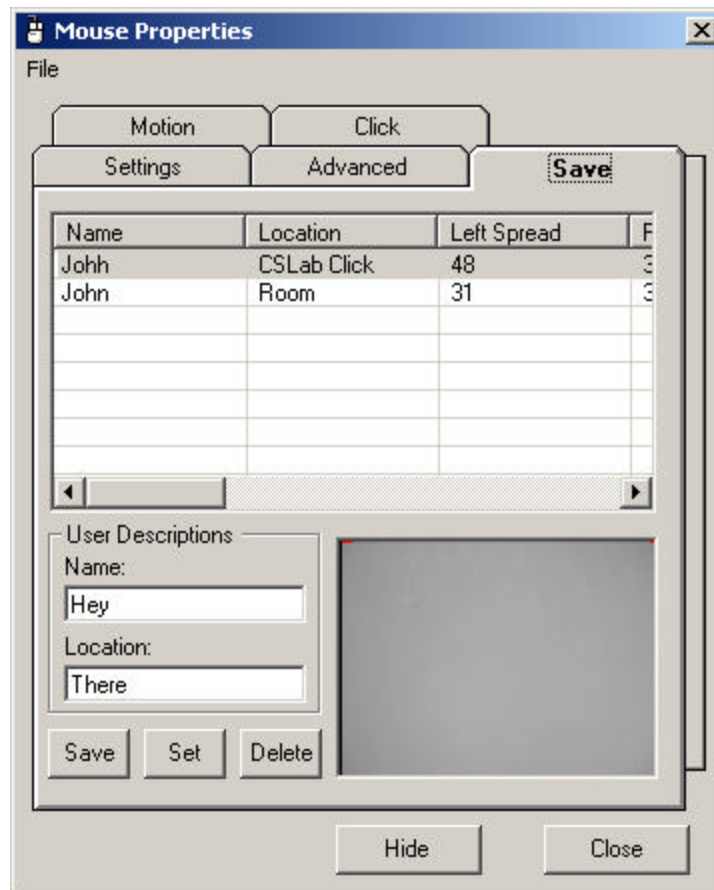
The last option to you can set in relation to clicking is the click sensitivity. The click sensitively will slow down or speed up the responsive time of the right click, left down, and left up clicks. To adjust the click sensitivity just move the click sensitivity slider bar located on the click tab.

Save Settings Tab:

The application has the capability to save multiple user's personal settings. To save your settings just click on the Save tab. On the save tab will be located an option for a name and location for your settings. Once you enter a name and location if you wish just click the "Save" button on the tab to save your settings. To retrieve your settings at a later time just select your settings from the list view above and click the "Set" button. To delete a saved settings just select the settings form the list view above and click the "Delete" button.

Closing and Hiding the Application:

The Hand Mouse Movements application is designed to run in the system tray. To hide the application in the system tray just click the hide button located at the bottom of the screen. To permanently close the application you have multiple options. You can click the close button or the "x" located in the upper right corner. You can also close the application by going to File→Close Hand Mouse. Finally if the application is hiding in the system tray you can right click on the mouse icon and select the "Close Hand Mouse". To maximise the application from the system try just click the mosue icon.