

Volume

2

YANG'S SCIENTIFIC RESEARCH INSTITUTE, LLC.

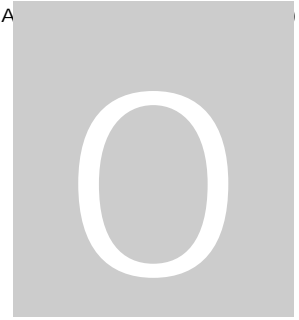
VMouse Webcam Mouse

User Guide

VMOUSE WEBCAM MOUSE

User Guide

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Introduction

*VMouse applies **Physical Linguistic Vision Technology** to control computer mouse from a webcam.*

The unique vision processing and understanding platform invented by the chief scientist of Yang's Scientific Research Institute, called Physical Linguistics Vision Technology, constitutes the backbone of VMouse software package for webcam based mouse controller used in Windows operating systems. VMouse targets the market of controlling mouse via webcams such as game controllers and virtual realities.

This document addresses the operations of the demo program of VMouse package. VMouse was first released in October 2004 and had been maintained and revised since then by Yang's Scientific Research Institute, LLC.(Yang's Scientific).

There are two kinds of commercial packages associated with VMouse demo. The first one is for the ender users and will be licensed to the ender users via a license fee per machine method. The second one is a developer's package to help computer programmers develop their own applications.

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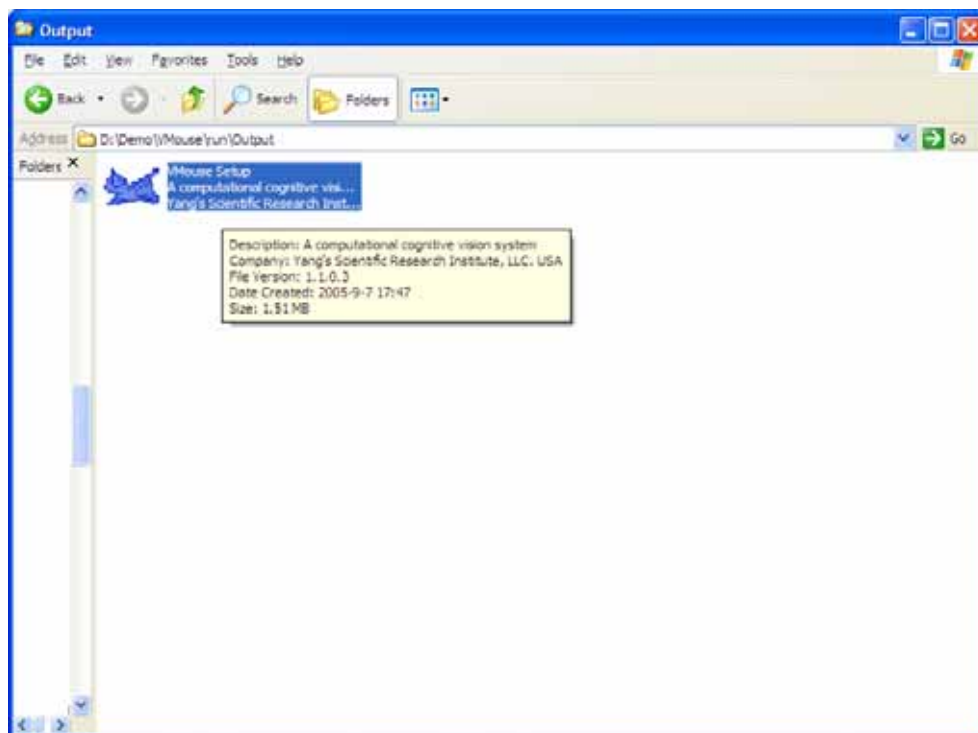
Getting Started

This chapter shows how to install VMouse into your computer with windows operating system.

To install BarSeer into your computer, please follow the following steps. If you downloaded BarSeer Setup from YangSky's Website, you should go to the download directory. If you install the developer's package from a CD, you should find the installer at the root directory of the installer CD.

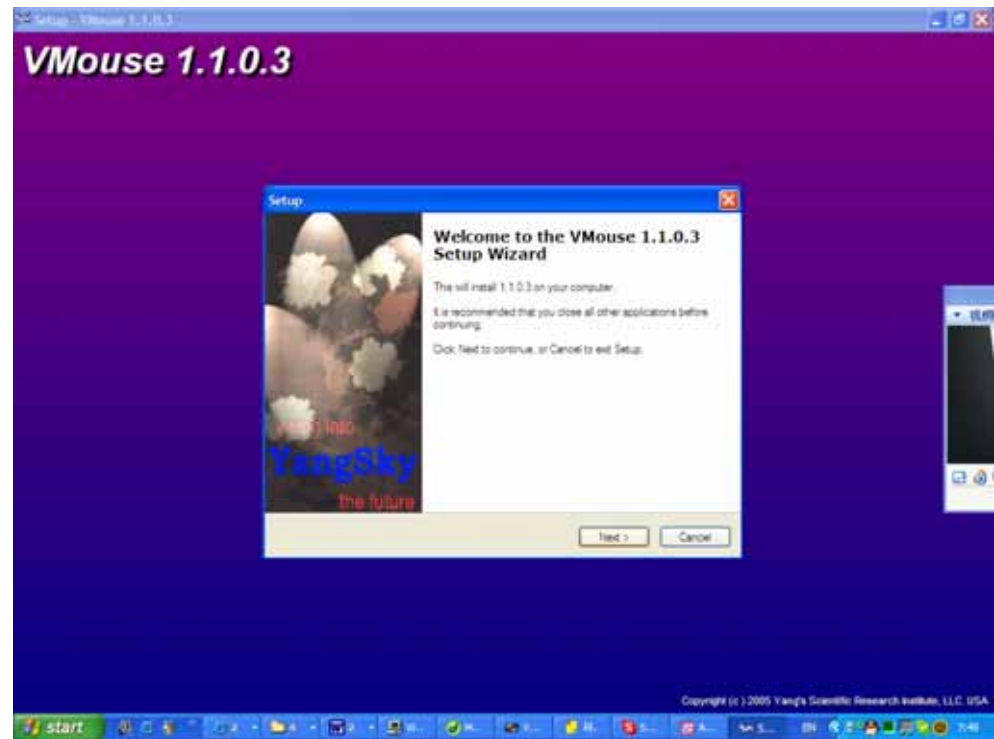
Step 1: Begin to install

Double click the **VMouse Setup** icon.

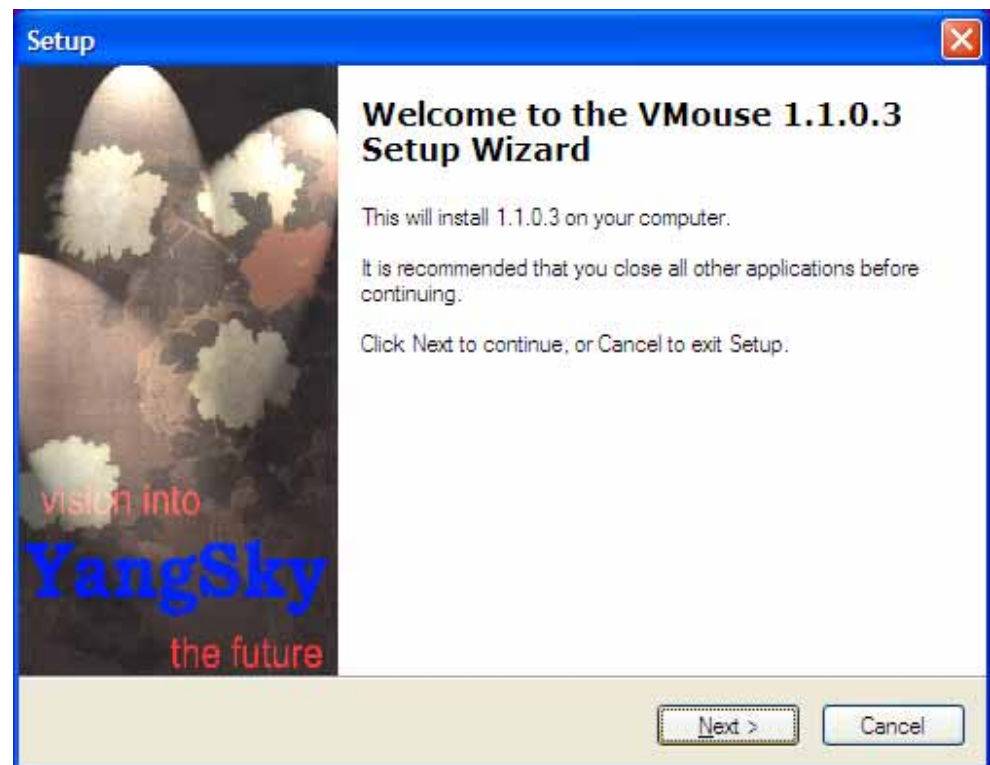


Step 2:

You will see the following interface of the installer.

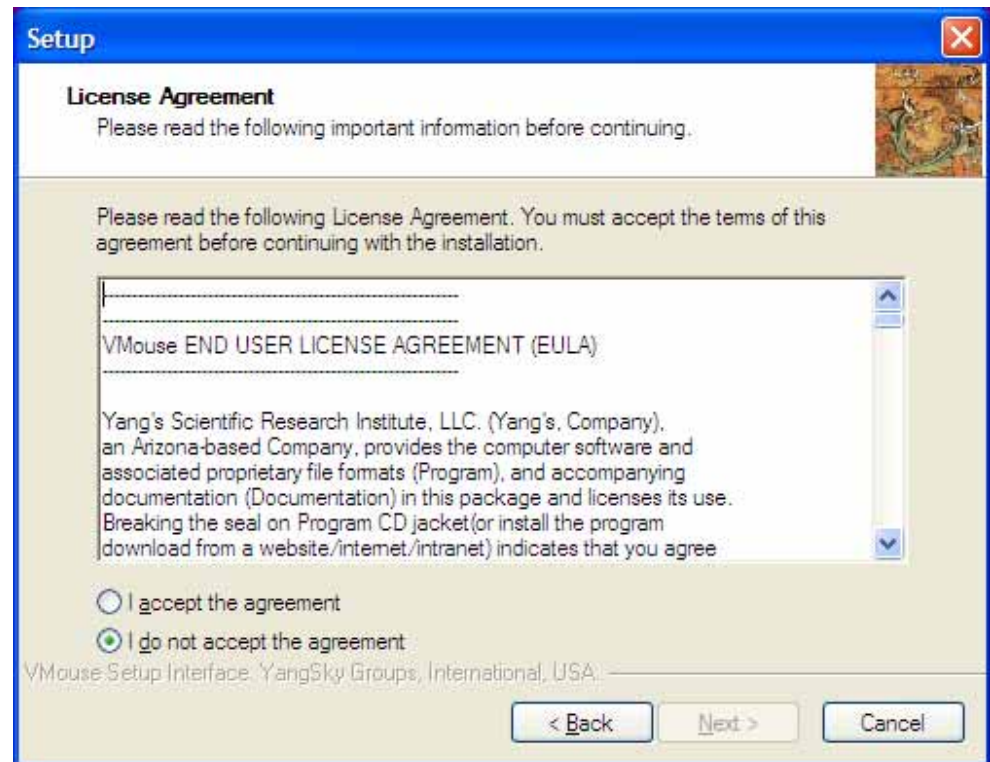


Click Next....

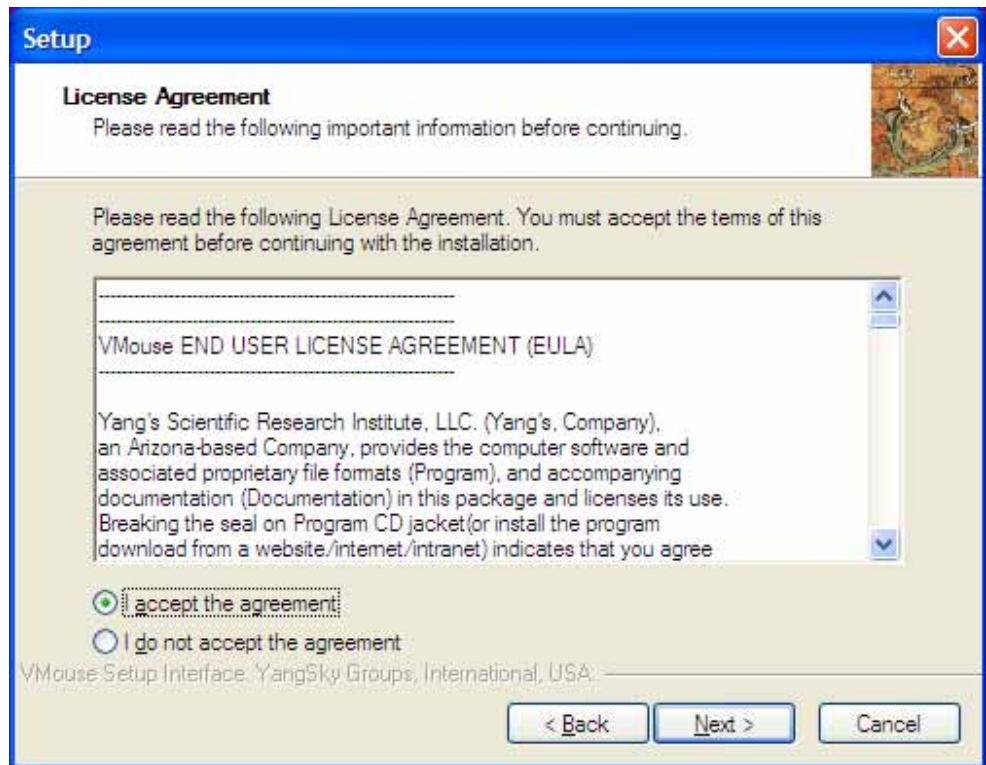


Step 3:

On this page, select the first radio button and then...

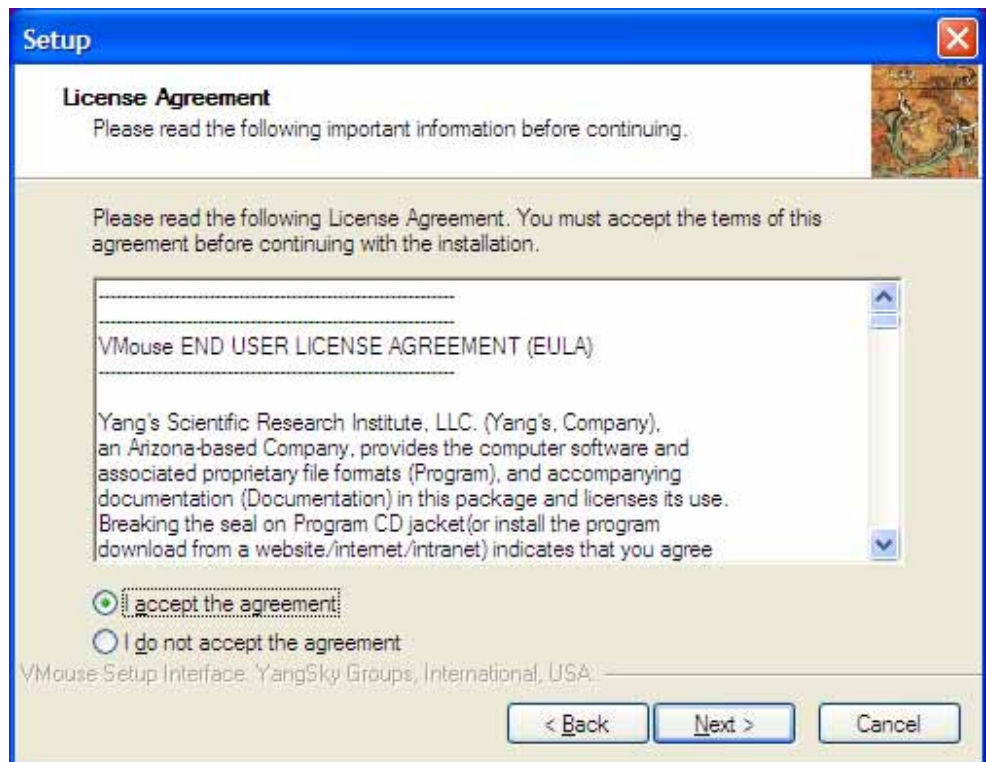


Click Next....

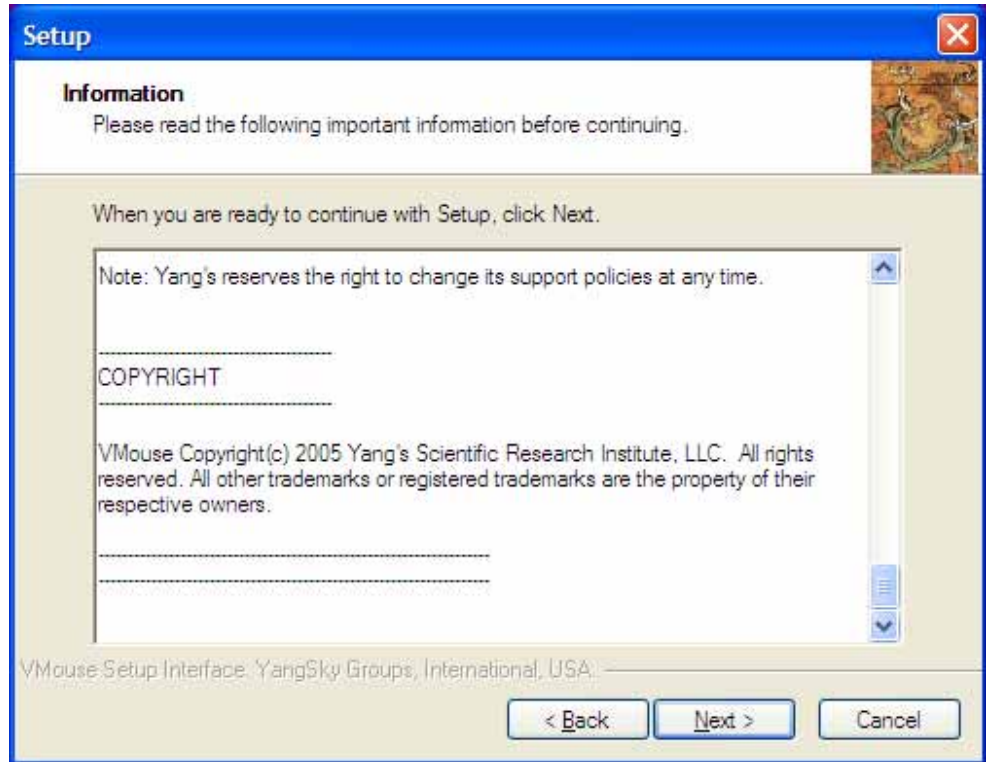


Step 4:

Read through the important information...

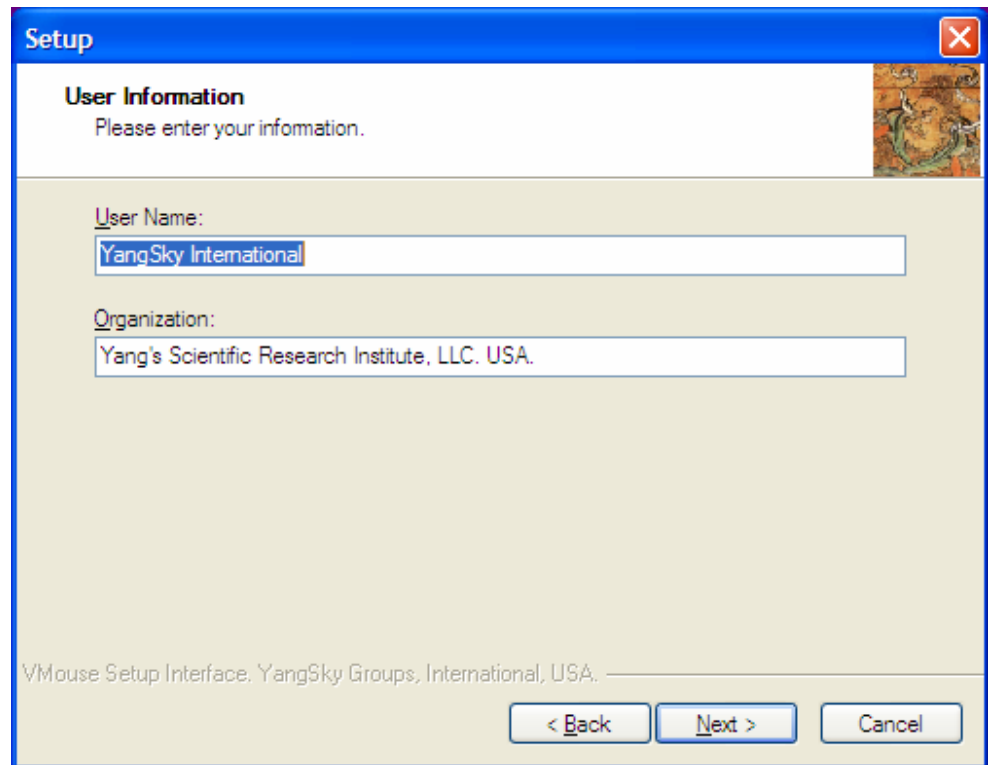


then click Next...



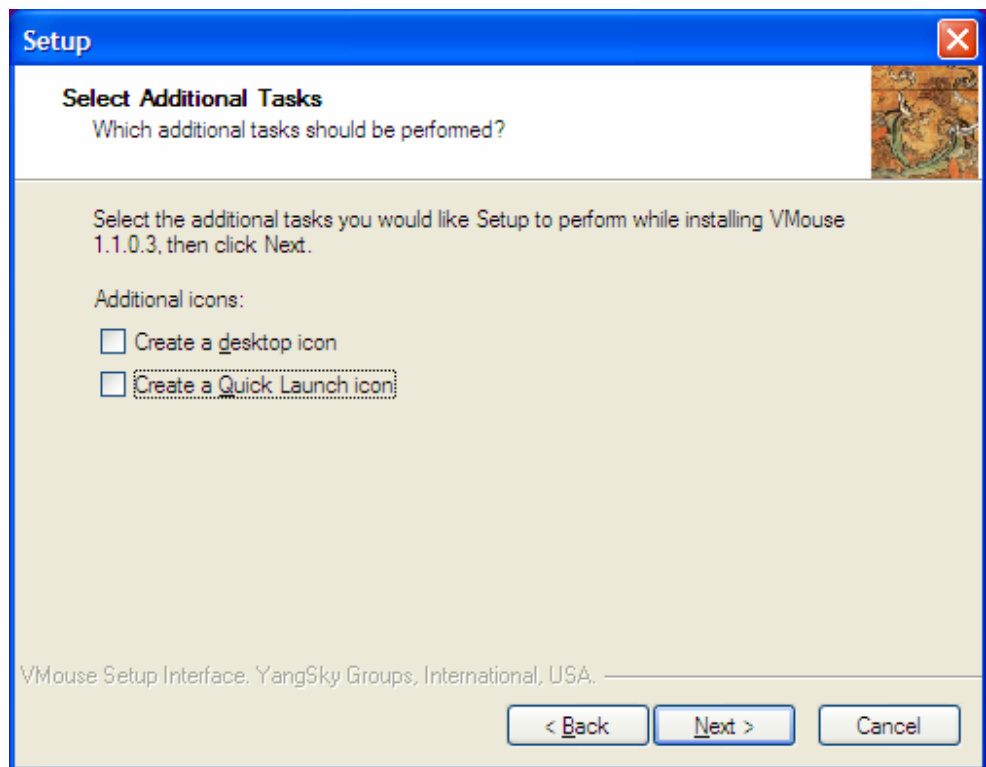
Step 5:

Enter the information and then click Next

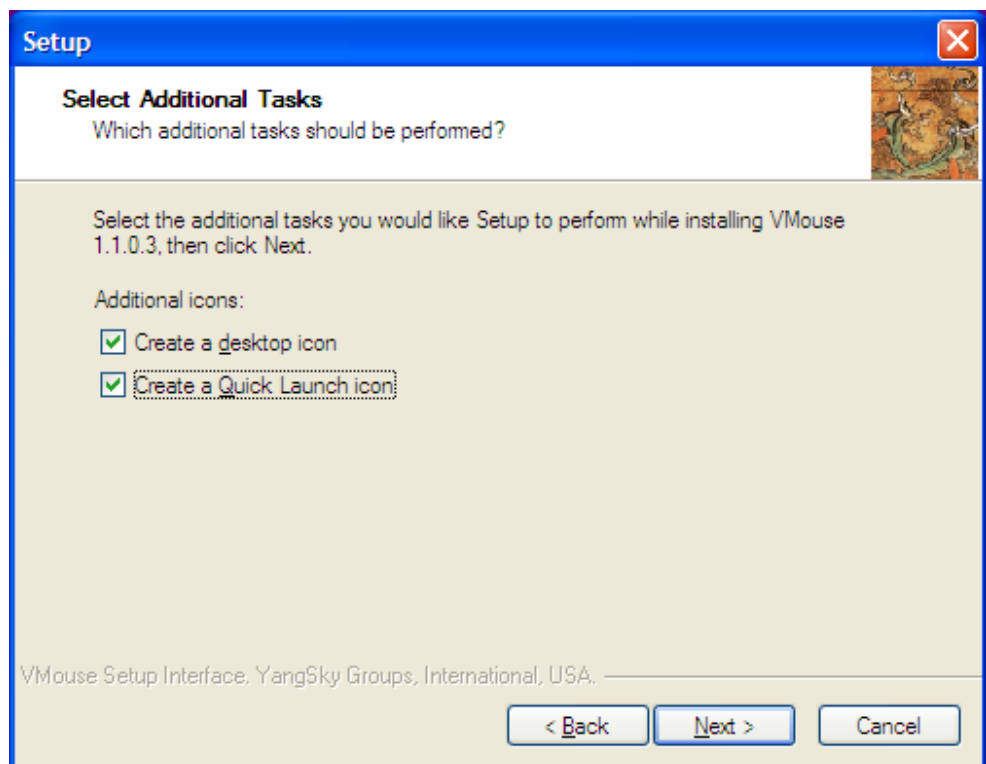


Step 6:

Check both choices to make quick launch links to the VMouse such that you can easily to locate it from time to time

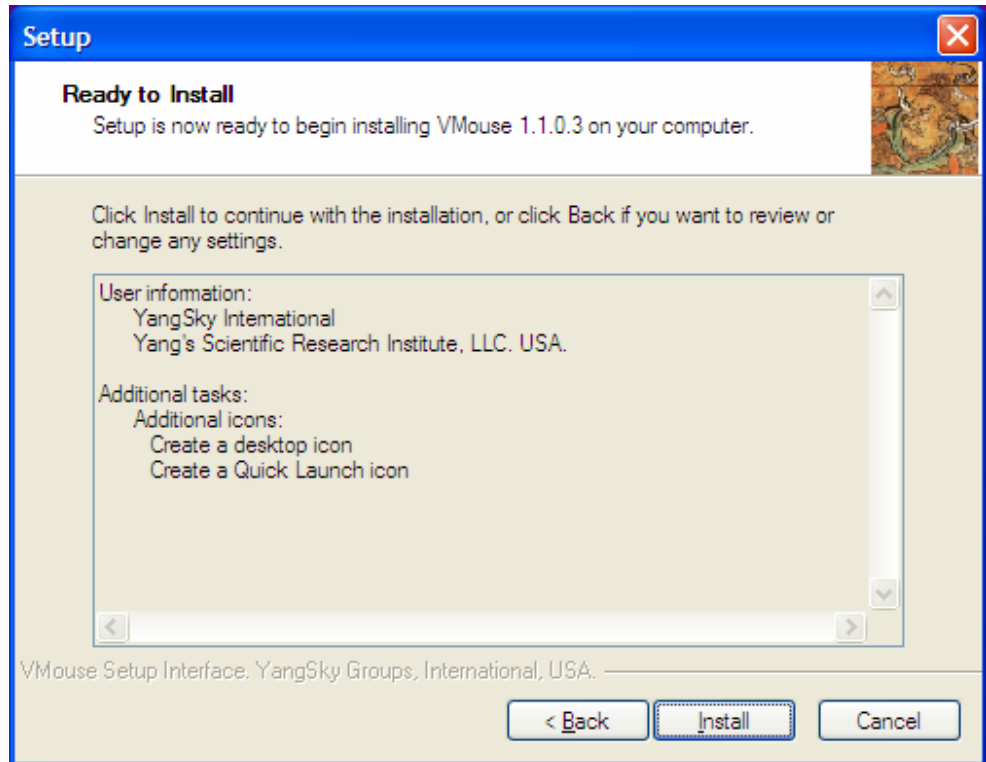


Click Next...



Step 7:

Click install to install these tasks, you can change options by clicking Back.



Control Mouse by Using Webcams

This chapter shows how to control a mouse from webcams by using VMouse.

To control mouse from a webcam by using VMouse, you need to have at least one webcam connecting to the USB ports of your computer. VMouse will work to its optimal potential when the settings of the computer, the lighting condition, the choice of the webcam are optimal.

Choosing Webcams

We recommend to use webcams with good optical systems. To reduce cost, many webcams use cheap plastic lens, their optical resolutions are low. A rule of thumb is to choose a webcam with a big glass lens. The webcam to the left is better than that to the right because the left one has a much bigger glass lens than the plastic lens installed in the right hand side webcam. VMouse can support cheap and low-end webcams under general working conditions.



Webcam with better lens

Webcam with small lens

Choosing Computers

VMouse uses the advanced image processing technology called physical linguistic technologies. Although VMouse has been optimized to take less computing resources, the image-processing nature of webcam mouse makes a trade-off between the performance of mouse controlled by using webcam and the speed of computer that is directly related to the price of the computer. Since VMouse uses a USB webcam, the bandwidth of your USB port can affect the responding speed of the VMouse. For example, a slow computer with a narrow USB bandwidth can not follow the fast motion of a user.

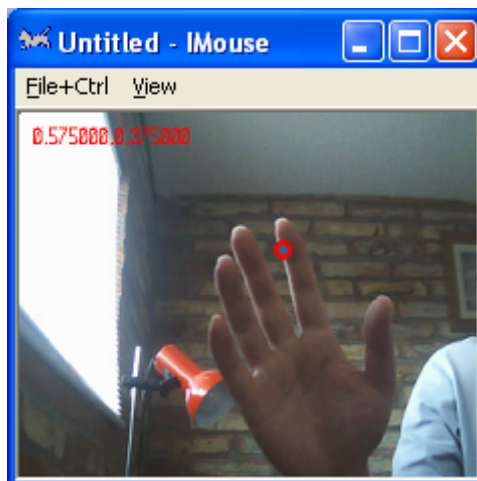
Working Conditions of Webcams

VMouse needs to work under a range of conditions. The thumb of rule for the proper working conditions of VMouse are:

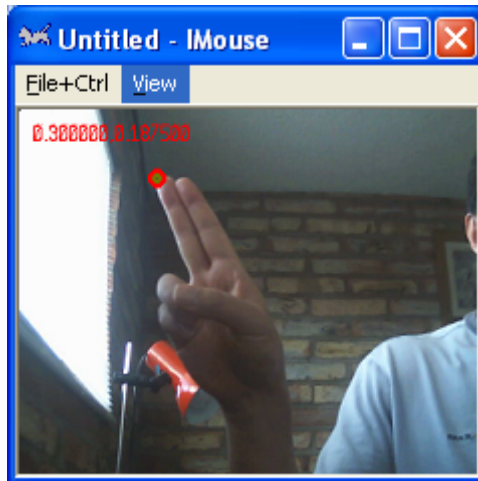
- A good lightening condition.
- Focusing on hands or moving parts of body sharply.
- A steady background.

The following are snapshots taken under good working conditions.

Case 1: Only one hand is the mouse controlling region.



Case 2: Only two fingers serve as the mouse controlling region while the shoulder region has very few motions.

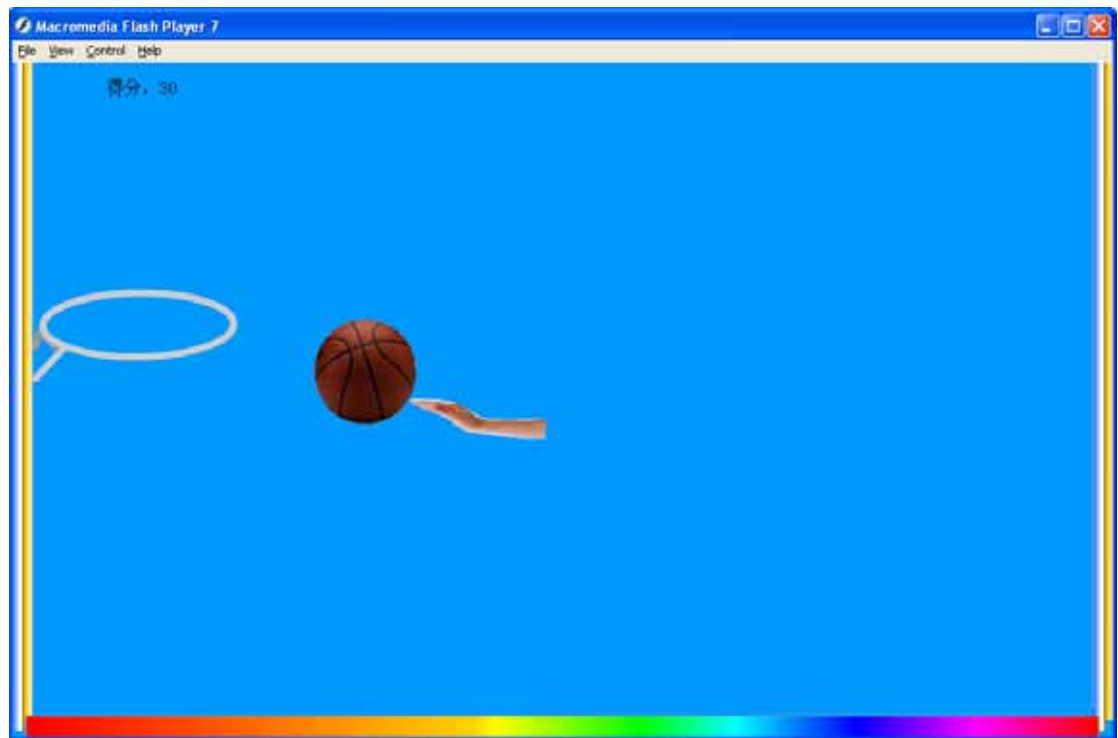


The following case is not a good control situation because when both the hand and the head move, they are appearing to be the mouse control regions. This results in the wondering of the mouse controlling regions over the entire frame.



The Demo Game

To demonstrate how to use VMouse to control the mouse, a simple demo game is included in the released package. This game will be self-evoked as soon as the VMouse main program is initiated. The interface of this game is as follow.



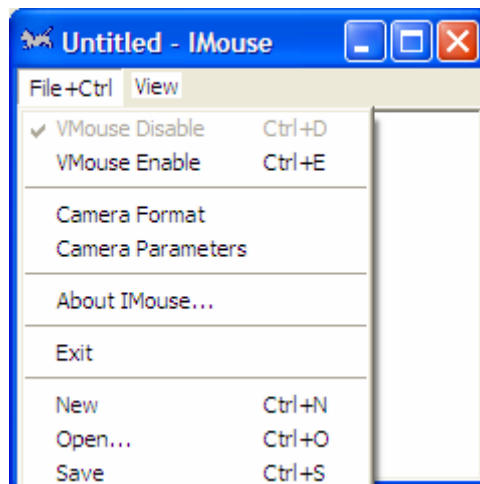
In this game, the hand can be controlled by the mouse cursor to move around to hit the ball. The details of the game are not important, the only thing important is to show how the mouse can be controlled later by using the VMouse software.

The VMouse Interface

VMouse has a very simple control interface as follows:



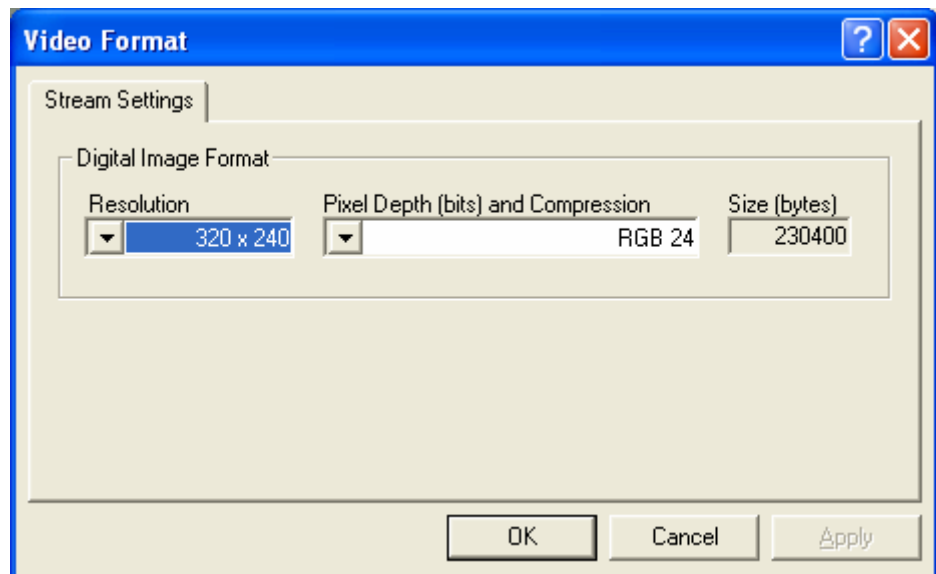
The file+Ctrl manu is as follows:



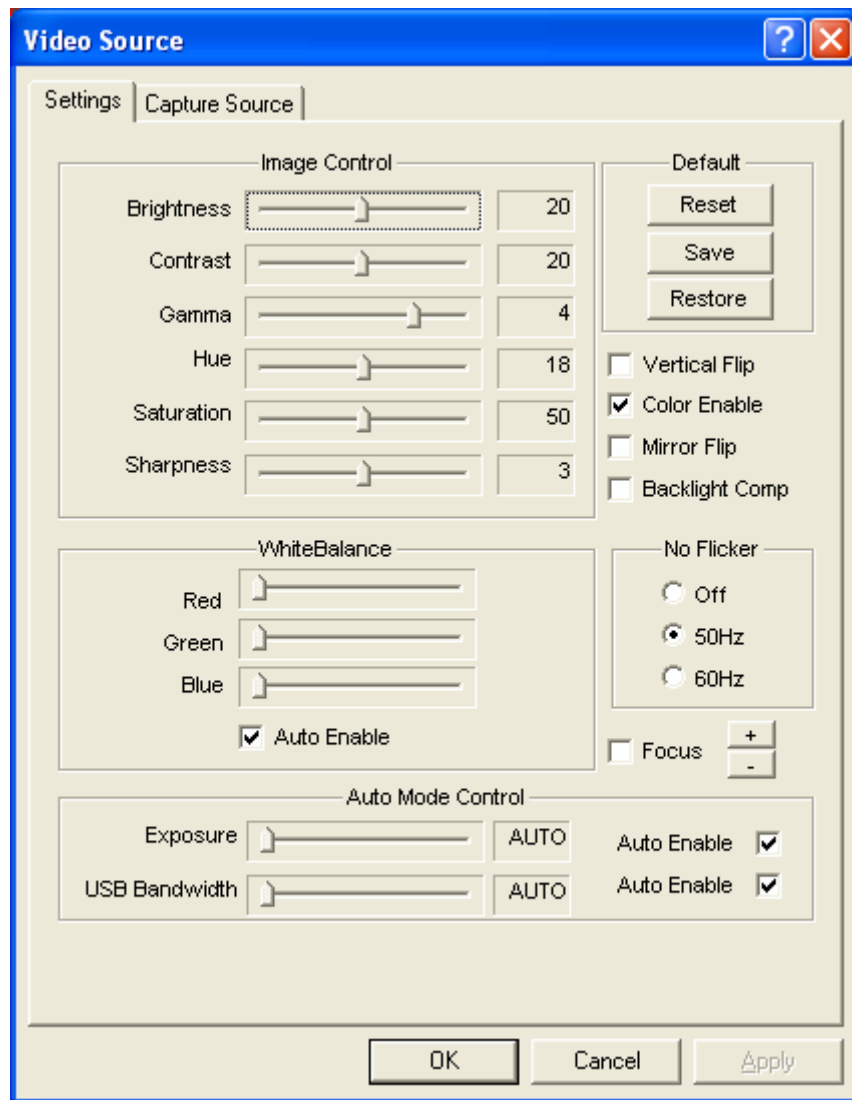
The **Ctrl+D** hot key disable the control of mouse from VMouse. This hot key combination is very useful in the case the mouse is controlled by the webcam and for some reasons the user want to shift back to normal mouse control.

The **Ctrl+E** hot key enable the control of mouse from VMouse.

The **Camera Format** manu item can be used to change the video size of the webcam, one example interface is as follows, your webcam may have different interface.



The **Camera Parameters** manu item can be used to change the video controlling parameters for the webcam.



How to Control the Mouse Using Webcam?

After running the VMouse program, use **Ctrl+E** hot key to transfer the control of mouse to the VMouse and then put your hand vertically in front of your webcam. To practice a few motions before your webcam and to find the most comfortable pose for operating your Webcam mouse. You will find the VMouse always tracks the upper-left tip of a moving region such as the finger tip of a moving hand.

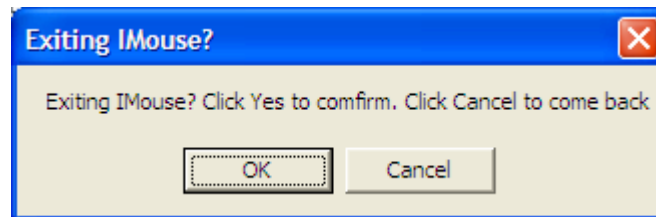
Use **Ctrl+D** hot key to release the control of mouse from the VMouse software when the user wants to return the control of mouse to Windows. This hot key is very useful when a computer is equipped with both VMouse and traditional mouse.

Although it is also good to use the motion of your head to control the mouse, the best way should be using your hand as the controlling region. To find how, just try

by yourself, it will be simple to learn the response of the mouse cursor to your movements.

Exit VMouse

After close the main window of the VMouse software, the following interface invokes



Click **OK** to exit the main program, or click **Cancel** to return to the normal functions.

Troubleshooting

This chapter shows how to resolve some common issues that might come across when using VMouse software to control mouse.

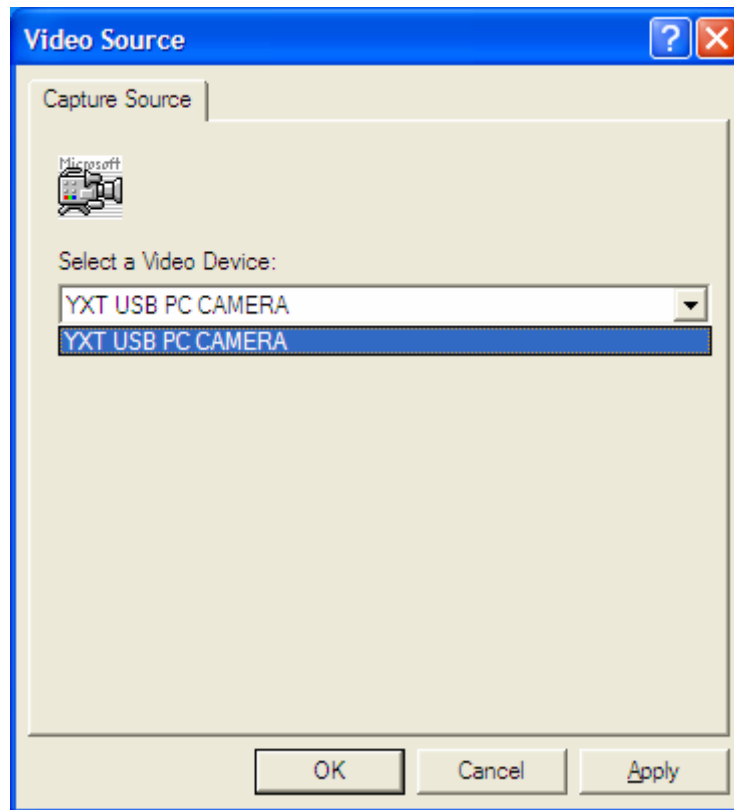
To explore the full ability of the VMouse, the working conditions of the entire system including your PC, the webcam and VMouse should be considered comprehensively. The quality of captured image frame will have critical influence to the final readings. The following are some tips for operating VMouse.

- Hold you webcam using some a stable support.
- Soft and indirect lighting sources help webcam focus well.,

In case that you have some problems, the followings should be useful tips.

Webcams Are Busy

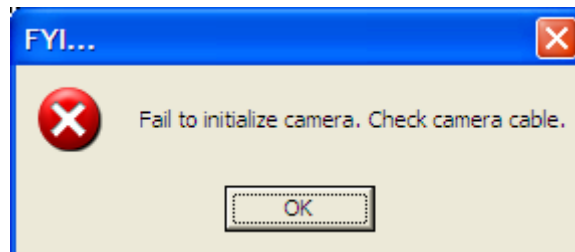
After you start the VMouse, if you see the following “Video Source” dialogue interface, it is most likely that your webcams are used by some other applications such as Internet chat software or video conference software, etc. ***To solve this problem, you need to either choose an available webcam from the list, or release the webcam from other software.***



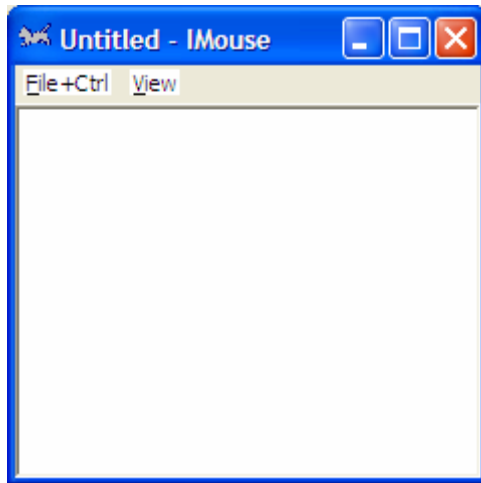
No Webcam Can Be Used

The following dialogue interface tells that BarSeer failed to initialize a webcam. To solve this problem, be sure to

- Check whether any webcam connected to USB ports of your computer.
- Check whether webcams are used by other software.
- Check whether webcams function well or not.



After click OK, you will get the following empty interface and the VMouse will do nothing.





FQAs

This chapter includes the FQAs concerning all issues of VMouse.

To run VMouse you don't need to be an expert of either image processing or webcam, it is as simple as using your webcam for teleconference. However, since a computer with a webcam is not as that simple as we first thought in many occasions, some tips are listed in this chapter you ease your experience with VMouse.

Where Can I Get the Demo of VMouse?

You can download VMouse from

<http://www.yangsky.us/demos/vmouse/vmouse.htm>

Or from the links in

<http://www.yangsky.us/demos/demos.htm>

As shown below, a quick link called **Visual Mouse** is available at <http://www.yangsky.us/> at the left navigation bar.



How to Know the Price of VMouse?

VMouse software family has the following two kinds of products:

- **End users package.** It is for end users and is licensed to the ender user just like many other software do, namely; a license fee will be charged for each installation.
- **Developers package.** It is for program developers such as a software company or an equipment manufacture. It provide program modules for the developers to program their own products.

Please send your request of price to sales@yangsky.com

What is the Difference Between the Demo and the Commercial Versions of VMouse?

The demo version of VMouse is only to demonstrate the way of controlling the mouse cursor by using a webcam, therefore it doesn't have any data ports available to the end user. The commercial version of VMouse provides rich data ports to interface with different applications for the end-users. Also, some advanced mouse action will be embedded into the commercial version of the VMouse.

Where Can I Get the Supports for VMouse?

See Chapter 5.

I Want to Develop a Software for my Applications, What Should I Do?

You need the developers' package for VMouse. The developers' VMouse package can help you to prototype your next vision mouse quickly and can also provide a specified solution for your current project. The developer's VMouse package was written in C-language.

Currently VMouse only supports USB webcams, are you going to support firewire video cameras or TCP/IP cameras?

VMouse will be developed for both personal and industrial markets. For personal market, VMouse will mainly support USB webcams. For the industrial markets firewire video cameras and TCP/IP cameras will be supported though currently only USB cameras are supported.



Support and Ordering Information

This chapter includes the supporting and ordering information for VMouse.

To order VMouse or to gain support for VMouse is simply a few clicks away.

How to Order

Send your check or money order to

Sales Department, Yang's Scientific Research Institute, 1303 East University Blvd.
#20882, Arizona 85719-0521, USA.

Please make your check or money order payable to ***Yang's Scientific Research Institute.***

For prices of BarSeer and related products, please send an email to sales@yangsky.com.

Support Information

For ender users, please refer to FQA sections of this User Guide for the most common problems. If you can not find the solution from FQA sections, please send an email to sales@yangsky.com or send a ticket via <http://www.yangsky.us/support/>.

Demos

The demos of VMouse can be found at the following link:

VMOUSE WEBCAM MOUSE (RELEASED TO PUBLIC)

<http://www.yangsky.us/demos/vmouse/vmouse.htm>

Or click

<http://www.yangsky.us/demos/demos.htm>

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