



Using the IVS BAT

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Using the IVS Bat

Introduction

The IVS Bat mode of exploration provides a powerful means to navigate around the 3D data space with the use of a 3D (six degree of freedom) input device. A supported 3D input device must be connected and turned on before starting this mode.

PURPOSE

Throughout this tutorial you will:

1. **Connect a BAT to a computer**
2. **Become familiar with the IVS Bat and fly around data**
3. **Become familiar with movie making by recording a flight path**

1 Bat/Computer Setup

The 3D input device, or Bat, is shipped from IVS extensively tested and in a state that other than a few connections, the device should operate “right out of the box”. The configuration of the Bat parts and connections can be seen below.

Once the Bat is connected to the computer, plugged in and turned on, you will need to set up the Fledermaus preferences.



This image shows the Patriot 3D input device connected to a laptop running the Windows operating system. In a similar fashion to the older Istotrak II hardware the device features both a transmitter (the Cube) and a receiver which is the joystick handle. Currently the device is connected to the computer through the serial port cable. In the future USB support will be added however as of Fledermaus 6.1, only the serial port connection is available. Once the Bat is connected to the computer, plugged in and turned on, you will need to set up the Fledermaus preferences.

A close up of the left and right sides of the Patriot device is shown below with the relevant parts identified on the picture.

Left Side view of Patriot:

1. base unit
2. bat receiver handle (the joystick handle)
3. bat transmitter (the cube)
4. the power transformer for the device







Right side view of the Patriot:

1. Power connection to the unit
2. DIP switch settings (down, up, down, down, down)
3. Serial port connection to the computer



1.1 Setting Fledermaus Preferences

1. Start Fledermaus
2. Select File > Preferences. This should bring up the Fledermaus preference window.
3. In the Preference Group window, select 3D Flying. This will bring up a list of 3D devices and ports.
4. Assuming you have purchased, and are using an IVS Bat, you should select Polhemus Patriot device.
5. Set the port to the device port you are using or in other words the port your serial cable is plugged into -- usually port 1.
6. Click the “Apply Changes” button at the bottom of the window.

7.  You are finished here in regards to the Bat, so you can exit out by pressing the OK button.
8.  To test if your Bat is working properly, select Exploration > 3D Flight.
9.  When you hold down either of the Bat buttons (see below), the predictor should appear on the screen and react to your hand movements.
10.  If you are still not sure, import a simple data object, this can be done by selecting Data > Add Grid. If all is working correctly, you should be able to fly around this object.



Recommended bat grips. (Note that either the trigger or top buttons can be used to activate bat movement.)

1.2 Trouble Shooting Bat

If you have problems starting the Bat, you should first check the hardware and software configurations:

- Is the Bat connected to the serial port you are trying to use?
- Is the Bat turned on?
- Are the preferences in Fledermaus set to the correct port and type of device?

If all of the above seem to be in order, then you will have to use the Device3DServer applet (which Fledermaus and the Bat use to communicate), which can also be run independently to find the fault.

When trouble shooting it is best to directly run the Device3DServer applet from the command line so that you see a scrolling list of numbers when the Bat is correctly operating. Once the Bat is running you can also then run Fledermaus separately and change to the 3D flight mode.

OTHER THINGS TO CHECK:

1.3 PC Windows Platform

If the Bat is turned on and the serial cable is plugged in when Windows is booted, Windows will try and configure a serial mouse for the Bat. This will cause problems. **The simple solution is don't turn the Bat on until Windows is booted.**

1.4 Any Unix platform

1. **Double-check the serial port permissions.** Often they are configured by default to only allow reading from the serial port. The Bat requires both read and write permissions. To check port permissions change directory (cd) into /dev and type “ls -l”.

Depending on platform the serial port device name is:

	SGI	Sun	Linux
Port #1:	/dev/ttyd1	/dev/term/a	/dev/ttyS0
Port #2:	/dev/ttyd2	/dev/term/b	/dev/ttyS1

2. **If your settings are not correct, you will need to become root or contact someone with root permissions:**

Change mode by typing: “chmod 777 *port*”. This gives full permissions to the port. The execute permission (7) is not strictly necessary but is probably a good idea.

3. **Test the Device by running the program: Device3DServer -h for help**

Example: Device3DServer -device Patriot -port /dev/ttyS0 -v

Don't forget the -v command for verbose output. You will see a few messages and if all is well after 4-8 seconds you should see a continuous stream of numbers. If you do and they're not all zeros then the Bat is working and all should be well.

On the Unix platforms if you get the message unable to open port, and you have previously checked the permissions, then this often means that the cable connecting the computer to the Bat is missing a NULL modem adapter (or has one too many), or rarely, the cable may be failing.