

Diagnose Joysticks Issues

Physical joystick ↔ linux driver ↔ linux events stack ←A→ SDL2 library ←B→ EmulationStation

From your joystick to the batocera interface (EmulationStation), there are several technical steps. In case of issues, there are 2 mains tools, evtest and sdl2-jstest

evtest acts on point A to analyse linux events while sdl2-jstest acts on point B to analyse events going to EmulationStation.

evtests

events in the linux kernel are the way to handle mouses, keyboards, joysticks, etc... sdl2 is a library to help to code program compatible with linux, windows, mac os x, ... it converts linux events to a common way to define events. On linux, events are define in /usr/include/linux/input-event-codes.h. For example, the button "yellow" if your joystick has one is :

```
#define KEY_YELLOW      0x190 (1*16*16 + 9*16 + 0 = 400)
```

On Windows, possibly that this button is not defined, or at least, for sure, with an other value, while on Linux, the value is arbitrary. Thus, SDL doesn't use the code. Instead, SDL uses button numbers, thus, this button may be "BUTTON 1".

Let's see an example :

1. Connect via ssh to batocera
2. run evtest to check that linux sees your joysticks :

In my case, i've only 1 joystick plugged, it displays :

```
# evtest
No device specified, trying to scan all of /dev/input/event*
Available devices:
/dev/input/event0:  Bigben Interactive Bigben Game Pad
Select the device event number [0-0]:
```

Press 0 to see linux events on this joystick. In my case, when i press one button (button BTN_C), it displays :

```
Event: time 1492442283.255053, type 1 (EV_KEY), code 306 (BTN_C), value 1
Event: time 1492442283.255053, type 1 (EV_KEY), code 306 (BTN_C), value 0
```

value 1 is when the button is pressed. value 0 is when the buton is released.

Some general information, like the list of buttons available are provided by :

```
evtest --info /dev/input/event0
udevadm info -q all -n /dev/input/event0
```

sdl2-jstest

1. run `sdl2-jstest -list` to check what emulationstation sees when you press buttons

In my case, it displays :

```
# export DISPLAY=:0.0
# sdl2-jstest --list
Found 1 joystick(s)

Joystick Name:      'Bigben Interactive Bigben Game Pad'
Joystick Path:      '/dev/input/event0'
Joystick GUID:      0300000006b14000002090000011010000
Joystick Number:    0
Number of Axes:     4
Number of Buttons:  13
Number of Hats:     1
...
Button code  0:    304
Button code  1:    305
Button code  2:    306
...
```

To see the events, run `sdl2-jstest -e 0` (0 is the joystick number) When I press C, it displays :

```
...
SDL_JOYBUTTONDOWN: joystick: 0 button: 2 state: 1 code:306
SDL_JOYBUTTONUP:   joystick: 0 button: 2 state: 0 code:306
...
```

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