Making the Linux Kernel better
(without coding)

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About me

- Linux Kernel consultant & hacker
  (mostly embedded & driver frameworks)
- I2C maintainer
- like to share knowledge and enable people to get active
- like muted devices, especially during talks
Unable to open device

Please make sure the camera is connected and that the correct driver is installed.
Obtain the ID

- `lsusb`
- `lspci -nn`

**Note**

Existing entry does not mean existing driver and vice versa.
Submit the ID

This is crowdsourcing!


Easily done, yet really useful for developers.
Get more info, but check twice

- (obviously) search for the ID/name
- check forums, bug trackers, HW databases...
- watch out, lots of outdated info out there
Check the Windows-Drivers

INF-Files
Text files describing the driver to be installed.

To obtain it, you might need:

- `unzip`
- `unshield, cabextract`
- **WINE**
  Look here then:
  
  `~/.wine/drive_c/windows/inf`
  `~/.wine/drive_c/windows/profiles/<user>/Temp`
If the driver is generic, it will usually contain

- multiple IDs the driver will be responsible for
- name of the chipset used internally
- some other relevant info
Example (another cam)

%-USB\VID_0AC8&PID_0302. DeviceDesc%=
...USB\VID_03F0&PID_1B07
Example (this cam)

...USB\VID_0c45\&PID_624c ; SN9C201 + MI1320
...

...USB\VID_0458\&PID_7045 ; SN9C201 + MI1320
for KYE Look 1320 V2

Find the corresponding driver
Use the Linux Kernel Driver Database. Search for the new ID together with the term lkd.db.
$ su
# modprobe gspca_sn9c20x
# cd /sys/bus/usb/drivers/gspca_sn9c20x/
# echo 0458 7045 > new_id

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1So useful, yet so unknown. Available for USB, PCI/Cardbus, and PCMCIA
Let’s try that!
generic drivers often need parameter
  e.g. sensor type, bus addresses, various flags
wrong driver data did neither kill computer nor camera :)
up to 3.13, driver specific data couldn’t be passed²
since 3.14, it is possible to pass a reference id

²for USB, that is...
Trying again

```bash
# echo 0458 7045 > remove_id
# echo 0458 7045 0 0c45 624c > new_id
```
Let’s try that!
Hello,

I have $camera and could get it to run with Linux 3.14 by echoing its usb id ’0458 7045’ and the reference id ’0c45 624c’ to the new_id-file of $driver.

I am not familiar with creating patches, so I’d be happy if someone could pick this up.

Regards,

\[3\] maybe copy the echo line from above
Whom to send/CC it to?

- check modinfo <module_name>
- check the head of the source file
  LKDDDB has a link if sources not present
- scripts/get_maintainer.pl -f <src_file>
  if kernel sources present
- when in doubt: linux-kernel@vger.kernel.org (LKML)
- and me, of course: wsa@the-dreams.de
The gain

- cam works for you
- cam will work for all others
- you should get credit when support is added:
  Reported-by: Your name <your_name@provider.org>
If you are still interested...

Next step: Create a patch

- Read: Documentation/development-process/*
- Read: Documentation/SubmittingPatches

If you like hacking...

- LED doesn’t seem to work
- maybe add V4L control for autoexposure
Thank you for your attention!

Questions? Comments?

- right now
- anytime at this conference
- wsa@the-dreams.de