

## PCMCIA product id strings -> hashes generation at compilation time? [Was: Re: [patch 14/38] pcmcia: id\_table for wavelan\_cs]

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To: Andrew Morton <akpm@osdl.org>, torvalds@osdl.org

Andrew, Linus, all,

[note: for detailed code please take a look at 2.6.11-mm2]

Most pcmcia devices are matched to drivers using "product ID strings" embedded in the devices' Card Information Structures, as "manufactor ID / card ID" matches are much less reliable. Unfortunately, these strings cannot be passed to userspace for easy userspace-based loading of appropriate modules (MODNAME -- hotplug), so my suggestion is to also store crc32 hashes of the strings in the MODULE\_DEVICE\_TABLEs, e.g.:

```
PCMCIA_DEVICE_PROD_ID12("LINKSYS", "E-CARD", 0xf7cb0b07, 0x6701da11),
```

Only the hashes are stored in "modules.alias", and only the hashes calculated upon device insertion are passed to userspace.

While having to determine the crc32 hashes is a hassle to device driver authors, I do not see a smart way to generate these (or similar) hashes automatically at compilation time:

- the C preprocessor doesn't seem to be smart enough
- scripts/mod/file2alias.c would need to learn all architectures (and be cross-compilation aware) to relocate/dereference/access strings saved as

```
const char * prod_id[4];
in struct pcmcia_device_id s
```

To make the life easier for device driver authors,

- a big warning is put into dmesg if a pcmcia driver is inserted into the kernel and the hash mentioned in PCMCIA\_DEVICE\_PROD\_ID() is incorrect,
- the hash can easily be calculated in userspace from existing /etc/pcmcia/config files, from inserted PCMCIA cards and and and...
- I've added the appropriate hashes for all device matches for drivers in the base linux kernel.

-Kernel: PCMCIA product id strings -> hashes generation at compilation time? [Was: Re: [patch 14/38] pcmcia: id\_table for

Even though I'm a bit uncomfortable with this solution, I do not see any other feasible way. Linus, Andrew, do you agree with this handling despite all the troubles involved with it?

Dominik

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