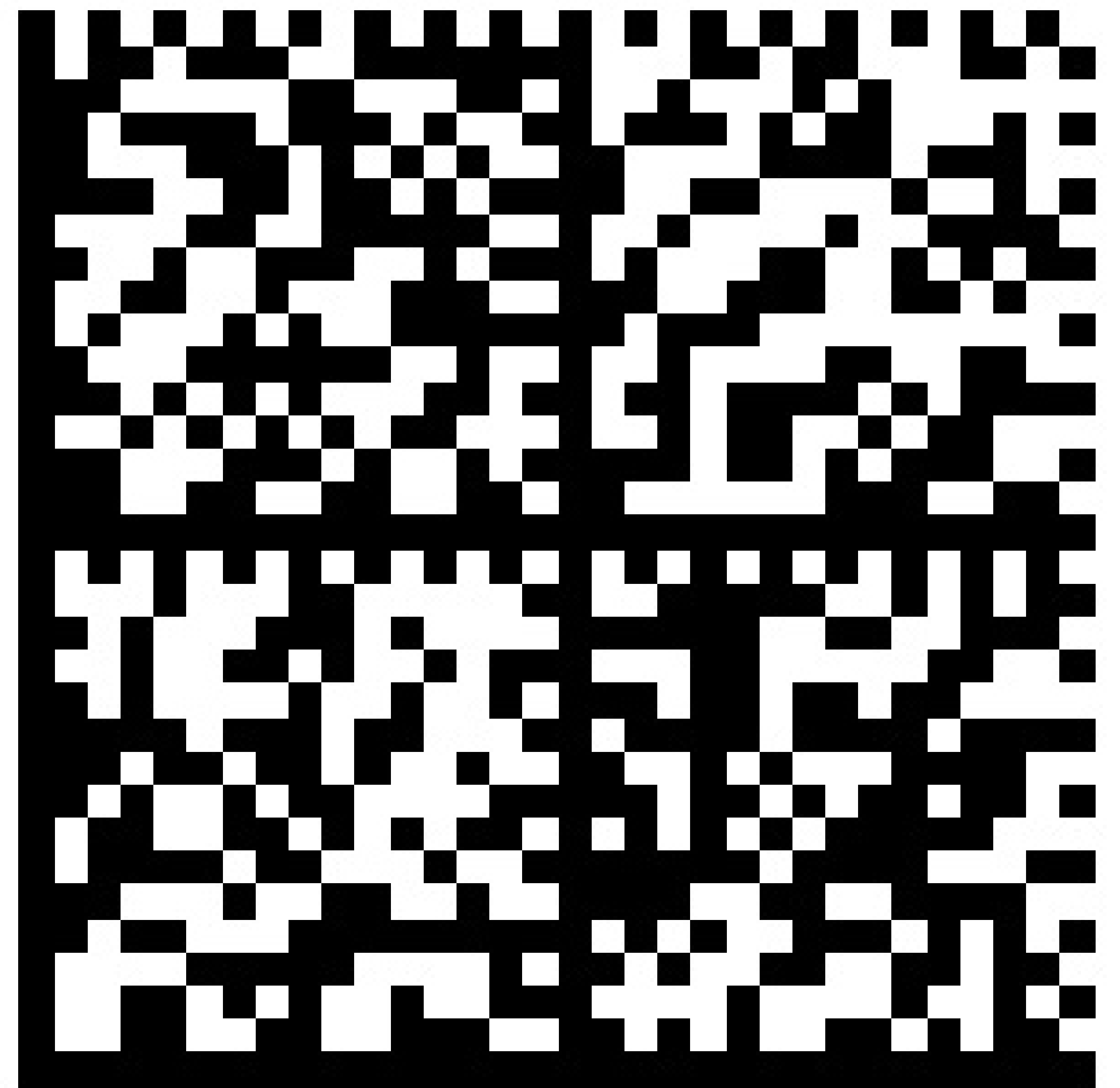
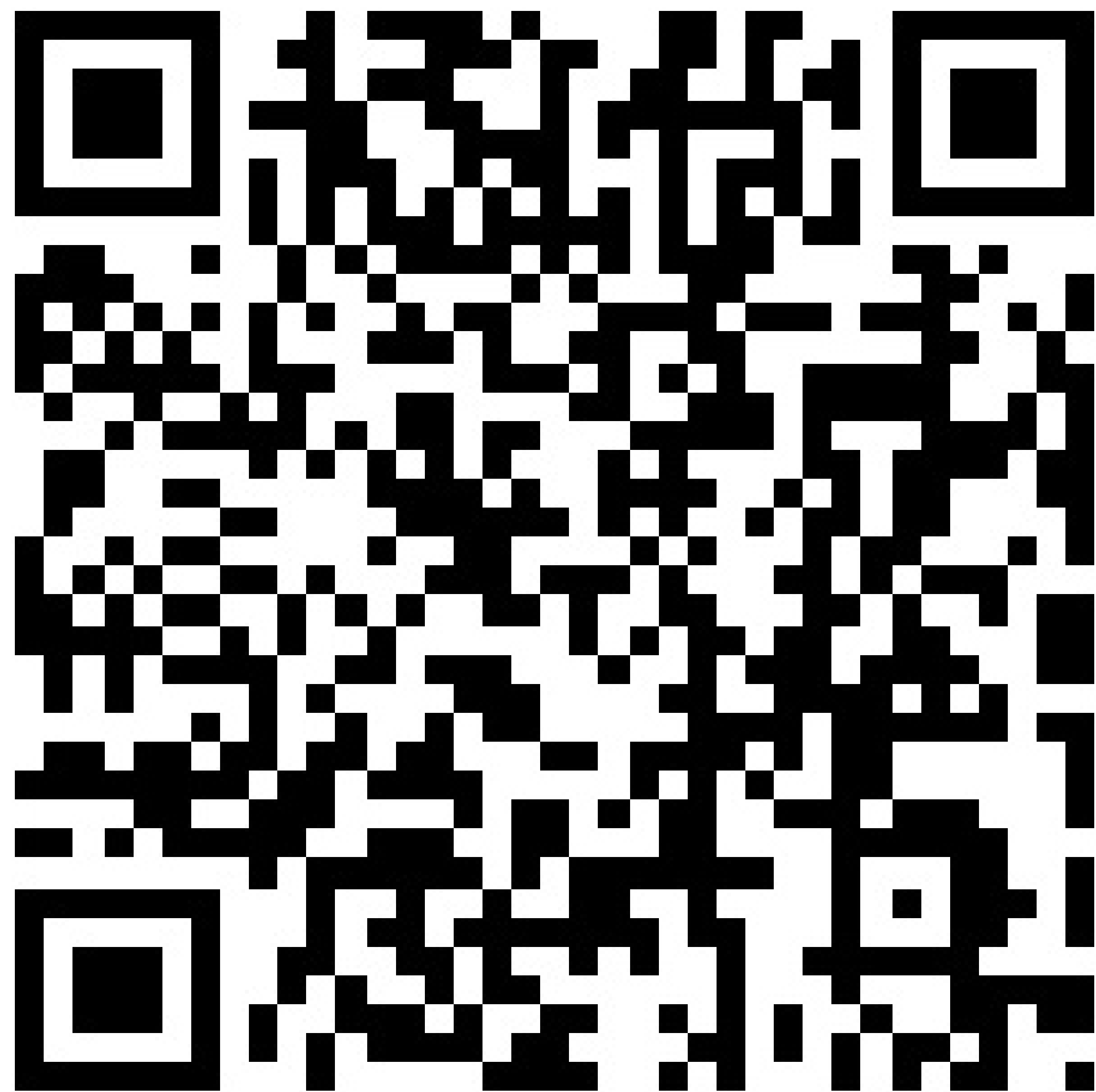


Build Your First Kernel Patch and Submit It

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<http://people.canonical.com/~acelan/coscup-2013/>



Introduction

- What can we fix (in the beginning)
- Key/ACPI/WMI events
- monitor WMI event by ftrace
- BIOS & OSI
- rfkill
- branch and add your code
- build patch and check it
- submit

What can we fix

- **brightness/volume** function key doesn't work, or adjust twice by one key stroke
- **display toggle** key
- **wifi/bt** can't enable/disable by function key
- wifi/bt **LED** doesn't sync with its status
- NOTE. You need the latest source code
MAINTAINERS in kernel source
drivers/platform/x86

Key/ACPI/WMI event

- Keyevent
 - could be observed by **showkey** command
 - /proc/bus/input/devices & **/lib/udev/keymap**
 - EC, ACPI, WMI
- ACPI event
 - **acpi_listen**
 - /sys/module/video/parameters/brightness_switch_enabled
 - **drivers/acpi/video.c**

Monitor WMI event by ftrace

- check which wmi driver do you use
 - `lsmod | grep wmi`
- `/sys/kernel/debug/tracing`
- `echo :mod:dell_wmi > set_ftrace_filter`
- `echo function > current_tracer`
- `cat trace`
- `echo nop > current_tracer`
- <http://people.canonical.com/~acelan/2010-aka-linux/>

BIOS & _OSI

- March 2009: Removed "Linux"
- We are MS Windows
 - Win7 before kernel **v3.7**
 - Win8 since kernel v3.7-rc1
- NOTE. drivers/acpi/acpica/utosi.c
 - acpi_osi="!Windows 2012"

rfkill

- rfkill list
 - H/W device and virtual device
 - hard block and soft block
- rfkill block/unblock
- /sys/class/rfkill
- **27e49ca** rfkill: Add the capability to switch all devices of all type in `__rfkill_switch_all()`.

branch and add your code

- build your driver apart from the whole kernel
- copy the driver directory to somewhere
- mv Makefile Kbuild
- copy Makefile from my directory
- modify Kbuild
- make

```
ifeq (, $(KVER))
    KERNELBUILD := /lib/modules/`uname -r`/build
else
    KERNELBUILD := /lib/modules/$(KVER)/build
endif
all:
    make -C $(KERNELBUILD) M=$(shell pwd) modules
clean:
    make -C $(KERNELBUILD) M=$(shell pwd) clean
```


branch and add your code(cont.)

- DKMS
- dkms.conf

```
PACKAGE_NAME="video"
```

```
PACKAGE_VERSION="1.0"
```

```
AUTOINSTALL="yes"
```

```
MAKE="make KVER=$kernelver"
```

```
CLEAN="make KVER=$kernelver clean"
```

```
BUILT_MODULE_NAME[0]="video"
```

```
BUILT_MODULE_LOCATION[0]="./"
```

```
DEST_MODULE_LOCATION[0]="/updates/kernel/"
```


branch and add your code(cont.)

- DKMS

- `cp -a video-1.0 /usr/src`
- `sudo dkms add -m video -v 1.0`
- `sudo dkms build -m video -v 1.0`
- `(sudo dkms install -m video -v 1.0)`
- `sudo dkms mkdeb -m video -v 1.0`
- `(sudo dkms remove -m video -v 1.0)`
- `/var/lib/dkms/video/1.0`

branch and add your code(cont.)

- git **checkout** -b new_branch
- apply your fix & git **commit** -a -e -s
- commit log should contain
 - what have you fixed
 - the problem user may encounter without the fix
 - Error message if any
- ex. **16a3d9f** thinkpad-acpi: enable loading module with new B-series Lenovo BIOS

Submit your patch

- check the coding style of the patch
 - [scripts/checkpatch.pl](#)
- setup [msmtp](#)
- check [MAINTAINERS](#) or [./scripts/get_maintainer.pl](#)

ASUS NOTEBOOKS AND EEEPC ACPI/WMI EXTRAS DRIVERS

M: Corentin Chary <corentin.chary@gmail.com>

L: acpi4asus-user@lists.sourceforge.net

L: platform-driver-x86@vger.kernel.org

W: <http://acpi4asus.sf.net>

S: Maintained

F: `drivers/platform/x86/asus*.c`

F: `drivers/platform/x86/eeepc*.c`

Submit your patch(cont.)

- git send-email **--no-chain-reply-to** **--thread** **--suppress-cc** all **--smtp-server** /usr/bin/msmtp **--from** 'AceLan Kao <acelan.kao@canonical.com>' **--to** "linux-bluetooth@vger.kernel.org" **--to** "Marcel Holtmann <marcel@holtmann.org>" **--to** "Gustavo Padovan <gustavo@padovan.org>" **--to** "Johan Hedberg <johan.hedberg@gmail.com>" **0001-Bluetooth-Add-support-for-Atheros-0cf3-3121.patch**

Reference

- [git://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux-2.6.git](https://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux-2.6.git)
- `git log drivers/platform/x86`
- `Documentation/trace/ftrace.txt`
- LKML(Linux Kernel Mailing List)
- <https://bugs.launchpad.net/ubuntu/+source/linux>