Write and Submit your first Linux Kernel Patch

Greg Kroah-Hartman
gregkh@linuxfoundation.org
github.com/gregkh/kernel-tutorial.git
Documentation/HOWTO
Documentation/
development_process
What are we not going to cover?
LINUX KERNEL IN A NUTSHELL
A Desktop Quick Reference

O'REILLY

Greg Kroah-Hartman
What we are going to cover

• git basics
• Linux kernel coding style
• Fixing a file
• Generating a patch
• Emailing the patch
git clone

git clone git://git.kernel.org/pub/scm/linux/kernel/git/torvalds/linux-2.6.git
git branch

git branch tutorial

git checkout tutorial
Working with linux-next

$ git remote add linux-next \
  git://git.kernel.org/pub/scm/linux/kernel/git/next/linux-next.git

$ git fetch linux-next

$ git fetch --tags linux-next

... # later on

$ git remote update
Documentation/CodingStyle
Why Care?
“It is not merely a matter of aesthetics that programs should be written in a particular style. Rather there is a psychological basis for writing programs in a conventional manner: programmers have strong expectations that other programmers will follow these discourse rules. If the rules are violated, then the utility afforded by the expectations that programmers have built up over time is effectively nullified.”

– Soloway & Ehrlich
Use tabs
All tabs are 8 characters
80 character line limit
if (error != -ENODEV) {
    foo();
    bar();
}

if (error != -ENODEV) {
    foo();
    bar();
} else {
    report_error();
    goto exit;
}
if (error != -ENODEV)
    foo();
else
    goto exit;
int function(int *baz)
{
    do_something(baz);
    return 0;
}
scripts/checkpatch.pl
In the case where a gadget driver is removed while no transceiver was found at probe time, a bug in `otg_put_transceiver()` will trigger.

Signed-off-by: Robert Jarzmik <robert.jarzmik@free.fr>
Acked-by: David Brownell <dbrownell@users.sourceforge.net>
Signed-off-by: Greg Kroah-Hartman <gregkh@suse.de>

```c
--- a/drivers/usb/otg/otg.c
+++ b/drivers/usb/otg/otg.c
@@ -43,7 +43,8 @@ EXPORT_SYMBOL(otg_get_transceiver);
    void otg_put_transceiver(struct otg_transceiver *x)
    {
        -       put_device(x->dev);
+       if (x)
+           put_device(x->dev);
    }
```
Developer's Certificate of Origin

(a) I created this change; or

(b) Based this on a previous work with a compatible license; or

(c) Provided to me by (a), (b), or (c) and not modified

(d) This contribution is public.
git diff

git commit

git show

git format-patch

git send-email
scripts/get_maintainer.pl
Checklist

- Kernel builds with patch applied
- Correct “From:” address
- Concise “Subject:”
- Explain the patch
- Signed-off-by
kernelnewbies.org/FirstKernelPatch

kernelnewbies.org/PatchTipsAndTricks