



Compiling Linux Kernel & Submit First Patch

Speaker:

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Strict Requirement

As linux kernel compilation is daunting task, so to save our time I request to the participants coming for this workshop must have following things preinstalled:

- > VMware Player (If possible, VMware tools also)
- > Virtualbox
- > Guest and Host Linux Installed (Fedora or CentOS)
- > Thunderbird Email client as mentioned in schedule.

Plan of Talk

- ❖ Very Brief history of Linux
- ❖ Let's Build Kernel right away
- ❖ Uh.....But where is my driver?
- ❖ Writing your first Linux Kernel Module
- ❖ Send it to Mail

Start the Game

Hope you all are ready with prerequisites that I mentioned

Check these packages:

```
# yum install ncurses-devel
```

```
# yum install rsyslog
```

```
# yum install gcc
```

Source Code Uncompress

To extract code at desired location,

```
# tar -Jxvf linux-3.12.42.tar.xz -C /usr/src
```

Enter into Directory

```
# cd /usr/src
```

Create a link to original one

```
# ln -s linux-3.x.x/ linux-fudcon
```

```
# cd linux-fudcon/
```

Start Compilation

To clean config+prev backup+prev files

```
# make mrproper
```

To copy old config file

```
# cp /usr/src/kernels/3.10.x/.config /usr/src/linux-fudcon/
```

To start build

```
# make localmodconfig
```

Time to create image

make bzImage

To compile modules only

make modules

To install modules

make modules_install

Time to install the Kernel images

```
# make install
```

Time to reboot as compilation process completed

```
# reboot
```


Hello World Module

Create a dir at non-root user location

```
$ cd Documents/LKP/
```

<https://github.com/ramlaxman/LKP/>

Contains two files:

- hello.c
- Makefile (Be careful with name and its contents)

Now go to Directory of Modules

```
$ make
```

Loading Module....

Log in as root

```
# insmod hello.ko
```

```
# lsmod | less
```

```
# tail -f /var/log/messages
```

Now unload module

```
# rmmod hello
```

```
# dmesg
```

Create a patch

Now make create copy of hello.c and make changes into that:

```
$ cp hello.c hello1.c
```

After making changes,

```
$ diff -u hello.c hello1.c > hello.patch
```

Apply patch,

```
$ patch < hello.patch
```

Send your patch to:

kernel-training@lukaselsner.de

[Will disabled later]

Use thunderbird settings.

Thanks to:

Lukas Elsner: For email Domains

**Greg Kroah-hartman: For advice on building kernel like
Speedy Machine**

and of course,

Audience !!