

Switching Arch Linux To Linux-ck Kernel

05/25/2015 11:48 AM - Daniel Curtis

Status:	Closed	Start date:	05/25/2015
Priority:	Normal	Due date:	
Assignee:	Daniel Curtis	% Done:	100%
Category:	Development Environment	Estimated time:	8.00 hours
Target version:	Arch Linux	Spent time:	9.50 hours

Description

This is a guide for installing the Linux-ck kernel on Arch linux.

Prepare the Environment

- Make sure the system is up to date:

```
sudo pacman -Syu
```

Install Linux-ck from Repo-ck

- Edit the pacman.conf:

```
vi /etc/pacman.conf
```

- And add the following to the end of the file:

```
[repo-ck]
Server = http://repo-ck.com/$arch
Server = http://repo-ck.com/$arch
Server = http://repo-ck.com/$arch
Server = http://repo-ck.com/$arch
Server = http://repo-ck.com/$arch
```

- Now repo key needs to be received and locally signed:

```
pacman-key -r 5EE46C4C
pacman-key --lsign-key 5EE46C4C
```

- Refresh the repo metadata:

```
pacman -Sy
```

- (Optional) Identify the CPU:

```
gcc -c -Q -march=native --help=target | grep march
```

- Install the generic Linux-ck kernel:

```
pacman -S linux-ck-generic
```

- (Optional) Or install the CPU specific kernel:

```
pacman -S linux-ck-kx
```

- Install the generic Linux-ck kernel headers:

```
pacman -S linux-ck-generic-headers
```

- (Optional) Or install the CPU specific kernel:

```
pacman -S linux-ck-kx
```

Install nVidia driver

- Install the generic Linux-ck nVidia driver:

```
pacman -S nvidia-304xx-ck-generic
```

- (Optional) Or install the CPU specific nVidia driver:

```
pacman -S nvidia-304xx-ck-kx
```

Install VirtualBox host driver:

- Install the generic Linux-ck VirtualBox host driver:

```
pacman -S virtualbox-ck-host-modules-generic
```

- (Optional) Or install the CPU specific VirtualBox host driver:

```
pacman -S virtualbox-ck-host-modules-kx
```

- Update the grub config:

```
grub-mkconfig -o /boot/grub/grub.cfg
```

Install Linux-ck from the AUR

Install yaourt

- Install [yaourt](#)

Receive PGP keys

- Receive Linus Torvalds' PGP key:

```
gpg --recv-keys 79BE3E4300411886
```

- Then ultimately trust the key:

```
trust
```

```
5
y
quit
```

- Receive Greg Kroah-Hartman's PGP key:

```
gpg --recv-keys 38DBBDC86092693E
```

- Then ultimately trust the key:

```
trust
5
y
quit
```

Install Linux-ck kernel

- Install the linux-ck package from the AUR:

```
yaourt linux-ck
```

- (Optional) Install the linux-ck-headers package:

```
yaourt linux-ck-headers
```

- Edit the PKGBUILD file and add the following:

```
_BFQ_enable_="y"
```

- Update the grub config:

```
grub-mkconfig -o /boot/grub/grub.cfg
```

Install Linux-ck nVidia driver

- (Optional) Install the linux-ck nvidia package:

```
yaourt nvidia-304xx-ck
```

Install Linux-ck VirtualBox host driver

- (Optional) Install the linux-ck virtualbox host modules:

```
yaourt virtualbox-ck-host-modules
```

Enable Budget Fair Queueing (BFQ) I/O Scheduling

- Check which I/O scheduler is in use:

```
cat /sys/block/sda/queue/scheduler
```

- *Example output:*

```
noop deadline [cfq] bfq
```

- Enable BFQ on /dev/sda without rebooting:

```
echo bfq > /sys/block/sda/queue/scheduler
```

- Check which I/O scheduler is in use:

```
cat /sys/block/sda/queue/scheduler
```

- *Example output:*

```
noop deadline cfq [bfq]
```

- Use BFQ on /dev/sda at boot persistently, create the set_IO_scheduler.conf file:

```
sudo vi /etc/tmpfiles.d/set_IO_scheduler.conf
```

- And add the following:

```
w /sys/block/sda/queue/scheduler - - - - bfq
```

BFQ Script

I had problems getting the tmpfiles.d configuration to work properly on systemd 219, so I created a script to easily enable BFQ on /dev/sda.

- Create the enable-bfq.sh script:

```
sudo nano /usr/local/sbin/enable-bfq.sh
```

- And add the following:

```
#!/bin/sh
## Script to enable BFQ on /dev/sda
echo bfq > /sys/block/sda/queue/scheduler
```

- Make it executable:

```
sudo chmod +x /usr/local/sbin/enable-bfq.sh
```

Resources

- <https://wiki.archlinux.org/index.php/Kernels>
- <https://wiki.archlinux.org/index.php/Linux-ck>
- <https://wiki.archlinux.org/index.php/Repo-ck>
- https://wiki.archlinux.org/index.php/Linux-ck#How_to_enable_the_BFQ_I.2FO_Scheduler

History

#1 - 05/25/2015 11:54 AM - Daniel Curtis

- Description updated
- % Done changed from 0 to 10

#2 - 05/26/2015 11:03 AM - Daniel Curtis

- % Done changed from 10 to 20
- Description updated

#3 - 06/03/2015 04:33 PM - Daniel Curtis

- Description updated
- Status changed from New to In Progress
- % Done changed from 20 to 50

#4 - 06/03/2015 04:49 PM - Daniel Curtis

- Description updated

#5 - 06/03/2015 04:55 PM - Daniel Curtis

- Description updated
- Status changed from In Progress to Resolved
- % Done changed from 50 to 100

#6 - 06/03/2015 05:07 PM - Daniel Curtis

- Description updated

#7 - 06/03/2015 05:07 PM - Daniel Curtis

- Description updated

#8 - 06/04/2015 11:28 AM - Daniel Curtis

- Description updated

#9 - 06/08/2015 09:58 AM - Daniel Curtis

- Description updated

#10 - 06/12/2015 10:31 AM - Daniel Curtis

- Status changed from Resolved to Closed

#11 - 07/15/2016 07:41 PM - Daniel Curtis

- Description updated