Raspberry Pi - Support #686

Compiling Kernel Modules on Raspbian

10/27/2015 04:18 PM - Daniel Curtis

Status:	Closed	**Start date:**	10/27/2015
Priority:	Normal	**Due date:**	
Assignee:	Daniel Curtis	**% Done:**	100%
Category:	Kernel Hacking	**Estimated time:**	3.00 hours
Target version:	Raspbian	**Spent time:**	1.00 hour

Description

This is a guide on how I compile a kernel module for Raspbian on a Raspberry Pi 2.

Prepare the Environment

- Make sure the system is up to date:

```
apt-get update && apt-get upgrade
```

- Install a few dependencies:

```
apt-get install build-essential bc automake autoconf libtool gawk alien fakeroot zlib1g-dev uu
id-dev libblkid-dev libselinux-dev parted lsscsi wget ncurses-dev
```

Download the Kernel

- Clone the latest raspberry pi toolchain:

```
cd /usr/src
git clone https://github.com/raspberrypi/tools
```

- Export the toolchain path:

```
export CCPREFIX=/usr/src/tools/arm-bcm2708/arm-bcm2708-linux-gnueabi/bin/arm-bcm2708-linux-gnu
eabi-
```

- Download the latest linux kernel for the raspberry pi:

```
cd /usr/src
git clone https://github.com/raspberrypi/linux
```

- Then checkout the current kernel version:

```
cd /usr/src/linux
zgrep "* firmware as of" /usr/share/doc/raspberrypi-bootloader/changelog.Debian.gz | head -1 |
 awk '{ print $5 }' | git checkout -
```

- Then export the kernel source path:

```
export KERNEL_SRC=/usr/src/linux
```

Compile the Kernel Modules

- Load the configs kernel module:

```
modprobe configs
```

- Load the current config into the kernel source directory:

```
zcat /proc/config.gz > /usr/src/linux/.config
```

- Prepare the kernel build environment:

```
cd /usr/src/linux
make mrproper
```

- Use the previous kernel config with the new kernel build environment:

```
make oldconfig
```

- Build the kernel:

```
make -j4
```

- Now use a make file that references the kernel source directory to built the kernel module only, use a line like:

```
PREFIX = /usr/src/tools/arm-bcm2708/arm-bcm2708-linux-gnueabi/bin/arm-bcm2708-linux-gnueabi-
make -C /usr/src/linux M=$(SRC) modules
```

Resources

- http://lostindetails.com/blog/post/Compiling-a-kernel-module-for-the-raspberry-pi-2
- http://openstack.prov12n.com/openstack-on-raspberry-pi-part-2-getting-started/
- https://raspberrypicloud.wordpress.com/2013/03/12/building-an-lxc-friendly-kernel-for-the-raspberry-pi/
- http://elinux.org/Raspberry_Pi_Kernel_Compilation

History

#1 - 10/27/2015 04:22 PM - Daniel Curtis

- Description updated

- % Done changed from 0 to 20

#2 - 10/27/2015 04:35 PM - Daniel Curtis

- Description updated

#3 - 10/27/2015 07:45 PM - Daniel Curtis

- Description updated

#4 - 10/27/2015 08:05 PM - Daniel Curtis

- Description updated

#5 - 11/15/2015 06:11 PM - Daniel Curtis

- Subject changed from Compiling a Kernel Module on Raspbian to Compiling Kernel Modules on Raspbian

- Category set to Kernel Hacking

- Status changed from New to Resolved

- % Done changed from 20 to 100

- Estimated time changed from 5.00 h to 3.00 h

#6 - 11/27/2015 03:44 PM - Daniel Curtis

- Status changed from Resolved to Closed