

<https://cdn.hackaday.io/files/7799333672416/snickerdoodle-book.pdf>

```
e:\myProj\fciv.exe -sha1 "e:\myProj\raspberryPI\NOOBS_v2_4_0.zip"
b8441908eecf9e79f1022be22279a34c19a42663 e:\myproj\raspberrypi\nooobs_v2_4_0.zip
```

wmic diskdrive list brief

Caption	DeviceID	Model	Partitions	Size
SDHC Card	\\.\PHYSICALDRIVE1	SDHC Card	0	31914086400

```
"e:\oracle\VirtualBox\VBBoxManage" internalcommands createrawvmdk -filename
"E:\Oracle\vm_disks\sdcard.vmdk" -rawdisk "\\.\PHYSICALDRIVE1"
VBBoxManage.exe: error: Cannot open the raw disk "\\.\PHYSICALDRIVE1":
VERR_ACCESS_DENIED
VBBoxManage.exe: error: The raw disk vmdk file was not created
```

Mount /dev/sdb2 /mnt/sdcardK

sudo blkid

lsblk

df -T

lsblk

fdisk-l

tar cvpf - .|(cd ../linux-4.4;tar xf -) //copy whole directory to other

<http://hackstore.co.il/books/raspberry-pi-for-beginners/#2>

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Cross referncee to linux for code scheduler run queue , affinity

Lxr site elixir cross reference

Uname -a

OsdI search - benchmarks of os preempt_rt patch

GRUB - grand unified bootloader

Kernel main.c rout init

Systemd

Systemctl

*.ko files

lsmod show LKM
modprobe to install LKM with its dependencies

/lib/modules/<kern ver>/Modules.dep show modules dependencies

Dmesg buffer cyclic log of kernel 16KB

בנית קרנל

Kernel.org
Tar -xaf

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Kernel install

Make xconfig -> .config creation in the kernel main directory

.config to build and transfer to known place /boot in name like <config_4.11.1_generic>

In config file :

m is kernel module

Y is enable option

Not use

=value for param

zcat /proc/config.gz Option is IKCONFIG for reading it

Make oldconfig - run on older .config and fit it to the current type of .config file

Make install

Make modules-install <option to specific driver>

Library arch

Make <arch>_defconfig

Block drivers

Like one partition on FS mounted to /dev

Dd copy convert files / block devices

/proc/devices

DL_DIR free electron

Irq controller - APIC ??
AMBA - arm bus ???

7.6.17

CHAR DEVICE drivers

System account for daemons creations

For example FTP account run a ftpd

/etc/passwd

/proc/ can be seen

Mount -t proc proc /proc

Qemu - sudo apt-get install qemu-system-arm

Major / minor can be listed at 'cat /proc/devices'

If (register_chrdev_region(this for getting major/minor)

Mknod /dev/tty0 c 4 64

Insmod (there is init routine that runs the registration routine

FOP - char file structure contains driver pointers to routines

copy_to_user() copy_from_user() in kernel for

Struct cdev for add

Pg 514 sample acme.c

Insmod namefile -c n1 n2

Rmmod driverl

Target file system
Initrd.img = target fs
../extract-initrd.sh

From internet

initrd	kernels 2.4 and lower	kdump uses initrd -> /boot/initrd-2.6.32-358.2.1.el6.x86_64kdump .img
mkinitrd	/sbin/init	קובץ נפרד שעולה כ RAM DISK
initramfs	2.6 and above	נמצא בקרנל ומקומפל בקרנל קובץ ה- initRd
dracut	/init	
DTB		מידע על כתובות ומיקומי DEVICES קובץ שמקומפל בנפרד במקום לקמפל את כל הקרנל

The process :

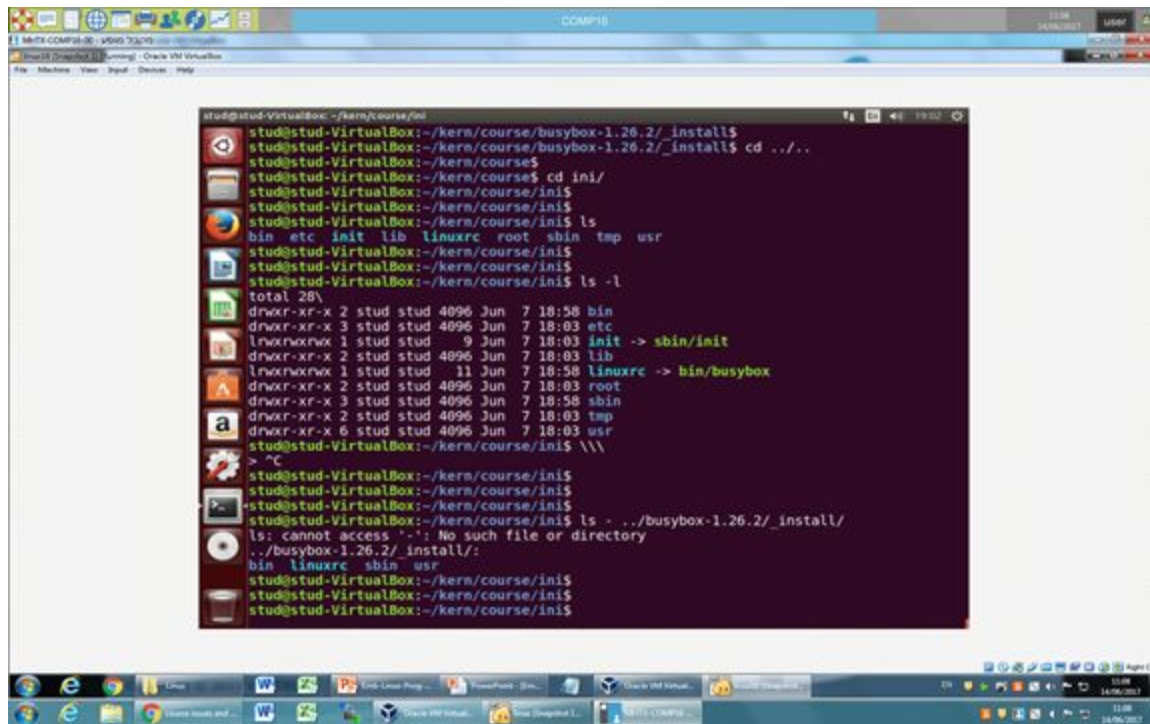
- Booter
- UBOOT + cfg file boot params
- Open U-image = its zimage wrapped for u-boot loader
- Kernel open rootfs or initrd+rootfs

Check it

Apt-get download

Apt-get dpkg -i

Busybox



The screenshot shows a terminal window titled 'stud@stud-VirtualBox: ~/kern/course/ini'. The user is in the directory ~/kern/course/busybox-1.26.2/_install. The terminal output shows the following commands and results:

```
stud@stud-VirtualBox:~/kern/course/busybox-1.26.2/_install$  
stud@stud-VirtualBox:~/kern/course/busybox-1.26.2/_install$ cd ../../  
stud@stud-VirtualBox:~/kern/course$  
stud@stud-VirtualBox:~/kern/course$ cd ini/  
stud@stud-VirtualBox:~/kern/course/ini$  
stud@stud-VirtualBox:~/kern/course/ini$  
stud@stud-VirtualBox:~/kern/course/ini$ ls  
bin  etc  init  lib  linuxrc  root  sbin  tmp  usr  
stud@stud-VirtualBox:~/kern/course/ini$  
stud@stud-VirtualBox:~/kern/course/ini$ ls -l  
total 28  
drwxr-xr-x 2 stud stud 4096 Jun 7 18:58 bin  
drwxr-xr-x 3 stud stud 4096 Jun 7 18:03 etc  
lrwxrwxrwx 1 stud stud 9 Jun 7 18:03 init -> sbin/init  
drwxr-xr-x 2 stud stud 4096 Jun 7 18:03 lib  
lrwxrwxrwx 1 stud stud 11 Jun 7 18:58 linuxrc -> bin/busybox  
drwxr-xr-x 2 stud stud 4096 Jun 7 18:03 root  
drwxr-xr-x 3 stud stud 4096 Jun 7 18:58 sbin  
drwxr-xr-x 2 stud stud 4096 Jun 7 18:03 tmp  
drwxr-xr-x 6 stud stud 4096 Jun 7 18:03 usr  
stud@stud-VirtualBox:~/kern/course/ini$ \\  
> ^C  
stud@stud-VirtualBox:~/kern/course/ini$  
stud@stud-VirtualBox:~/kern/course/ini$  
stud@stud-VirtualBox:~/kern/course/ini$  
stud@stud-VirtualBox:~/kern/course/ini$ ls - ../busybox-1.26.2/_install/  
ls: cannot access '-': No such file or directory  
../busybox-1.26.2/_install/  
bin  linuxrc  sbin  usr  
stud@stud-VirtualBox:~/kern/course/ini$  
stud@stud-VirtualBox:~/kern/course/ini$  
stud@stud-VirtualBox:~/kern/course/ini$
```

Change fs

1. Unzip scripts.zip (in DRIVE folder)
2. Extract-initramfs.sh< imagename.img>
3. Add / change files
4. Make-initrd.sh.sh
5. Run-qemu . <imageName.img>