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Inhaltsverzeichnis

1 Intro

How to prepare and create an SD-Card or USB Stick Boot-Image for RasPi 2 or 3
to be able to run the AS Software.
Basic Elements: Linux is ArchLinuxArm because it has most flexibility and newest drivers.
The Installation is with Xorg and jre for JavaFX. All activations are made with SYSTEMD.
Watchmen is running in parallel to GUI. (Simple WebServer for system analysis)
Hardware: RasPi 2 or 3 with Touch Screen 800x480 and USB Audio Interface.
Audio Interfaces are more stable in arch linux than in raspbian (why)
Symtom: audacity sometimes stopps recording in raspbian.
Arch is a pure systemd system.

1.1 Preparation Host

Knoppix 8,2 on old laptop

1.2 get it

Git clone h

2 Image prepare

2.1 Scripts

2.2 Parting

Plan: part1 256M part2 7G
Part1:
Part 1Sector Start 2048
Size Part1[sectors]: (256 * 1024 * 1024 – 2048 * 512) / 512 = 522240
Part 2:
Start Part2[Sectors]: 256 * 2^20 / 512 = 524288
Size Part2[Sectors]: 7 * 2^30 /512 = 14680064

dd size: (7 * 2^30 + 256 * 2^20) / 2^20 = 7424
TRAP: Knoppix background file system vFat does not allow 7G Filesize
UNTRAP: use with overlay .. allowes big files inside knoppix (not at mouunt system)

2.3 bootline

For USB Stick .. change bootdrive to sda1 (ala?)

2.4 Extending config.txt

Remove black borders

disable_overscan=1

For hifiberry amp and amp+

dtoverlay=hifiberry-amp

For Hifiberry amp2

dtoverlay=hifiberry-daclpus

For Touchscreen

max_usb_current=1
hdmi_force_hotplug=1
config_hdmi_boost=7
hdmi_group=2
hdmi_mode=1
hdmi_mode=87
hdmi_drive=1
hdmi_cvt 800 480 60 6 0 0 0

Uart

enable_uart=1

3 Creating

TRAP: ArchLinux requires bigger first partition than Raspbian.

tar -xvzf <file.tar.gz> -C <destination>

??? -p preserve file attributes

Use script

age.sh

to get the ala archieve file

TRAP: use rpi-2 image for raspi 3 too

Use script

make_image.sh

To create an image for arch linux

change config.txt for USB Stick usage

TODO every script mount and unmount losetup

4 First Install and Update

After starting image … log into arch linux with putty

Login as alarm; su to root (both name = passwd) (no root on ssh)

loadkeys de

at Terminal usage.

Two commands by install advise

pacman-key --init
pacman-key --populate archlinuxarm

Init the update system

pacman -Sy
pacman -Su

Special tool found necessary

pacman -S mc

nstall xorg in arch with optional lxde

pacman -S xorg
pacman -S xterm
pacman -S lxde
pacman -S xorg-xinit

start with

startx startlxde

PROBLEM: xorg istall is incomplete; after 2nd reboot sd card is corrupted and usb does not start
maybe: arch linux runs only from sd card

SUXXESS:

Everything from SD Card; not USB Stick

pacman -S xf86-video-fbdev

File

~/.xinitrc

contains

startlxde

start with

startx

you should see running lxde

5 Run Tests

5.1 Audio Test

Install audacity

pacman -S audacity

Audio Interfaces are not visible

must install

pacman -S alsa-lib

then audio interfaces are visible in audacity

pacman -S alsa-utils

then alsamixer is avaiable

5.2 Ensemble8

Test with bellsoft jre 9.....

Must run as root or problem with input

Bellsoft 11.0.2 lite does not contain FX

Must run big

Error message

JavaFX detected no fonts! Please refer to release notes for proper font configuration

Check with

/usr/share/fonts

contains something

fc-list

shows many fonts

Adding lib/fonts with lucidia from other jdk goes to next step

Hint

https://www.raspberrypi.org/forums/viewtopic.php?t=71111

https://wiki.openjdk.java.net/display/OpenJFX/Font+Setup

Next

glGetError 0x505 == out of memory reported by the opengl gpu driver.

gpu_mem=256

Suxessful start script from ssh terminal

DISPLAY=:0.0 j9/bin/java -Dprism.useFontConfig=false -jar Ensemble8.jar

Mouse input on Ensemble8 … No keyboard input ???

--- no keyboard ??? … Start command:

j11b/bin/java -Dprism.useFontConfig=false -jar Ensemble8.jar

5.3 Standard Java Demos

Test mit:

jre8-openjdk

Standard Java Demos

krötenlangsam

alle Bellsoft stürzen ab

Cross Test

jre-openjdk

was 11 ist

Stürzt auch ab

11er Demos holen:

Aus zulu package (Azul Zulu)

Bellsoft J11b mit 11er Demo … geht so

-Xcomp

extem lange ladezeiten; dann nett

jre-openjdk mit 11er Demo: Zuckt ruckelt aber dann schnell

jre8-openjdk: -Xcomp : magic switch no effect

jre11-openjdk ohne magic switch etwas langsamer aber startet viel schneller

Ensble8 and bellsoft jre11 **ohne** X: surprise runs too … without keyboard

can only be stopped with a

```
killall java
```

5.4 Sun/Oracle jre

Access download requires name password !

https://docs.oracle.com/javase/8/embedded/develop-apps-platforms/jrecreate.htm

Use Script

```
ejdk.sh
```

to builsd sun jre.

Loading time and execution speed

BOOAAAAAHHHH

5.5 Sun with gluon 6

https://stackoverflow.com/questions/38359076/how-can-i-get-javafx-working-on-raspberry-pi-3

Combine sun jre with gluon 6 (Problem armv7 arm v6 ?????)

```
armv6hf-sdk/rt/lib/ext/jfxrt.jar --> jre/lib/ext/
armv6hf-sdk/rt/lib/arm/* --> jre/lib/arm/
armv6hf-sdk/rt/lib/javafx.platform.properties --> jre/lib/
armv6hf-sdk/rt/lib/javafx.properties --> jre/lib/
armv6hf-sdk/rt/lib/jfxswt.jar --> jre/lib/
```

exactly same problem as bellsoft11: no keyboard and block cursor after scrollbar usage

different failure message because of fonts

Start script Error message no Fonts

```
gluon/bin/java -jar Ensemble8.jar
```

starts:

```
gluon/bin/java -Dprism.useFontConfig=false -jar Ensemble8.jar
```

Lucidia fonts was already in sunjre.

5.6 Cross check Raspbian

With installed oracle jre … good performance

Ensemble8 with Liberica jre same symtoms … no keyboard and scrollbar cursor disappear

6 Prep 4 X

For german kezboard and Timezon the File

~/.xinitrc

must contain

```
setxkbmap de &
timedatectl set-timeyone Europe/Berlin &
startlxde
```

7 Add JRE

7.1 Added dirs in ala userland

/opt/as/apps

Own applications

as application and watchmen

/opt/as/sunjre

Last latest sun / oracle jre 8 full generated by jrecreate

/opt/as/gluon

/opt/as/lib9

Latest Bellsoft Liberica jre version 9 (with javafx)

/opt/as/lib11

Latest Bellsoft Liberica jre version 11 (with javafx)

7.2 Files added to userland

/home/alarm/.xinitrc

/root/system-update.sh

8 systemd

Find out what to do

```
systemctl
```

shows too much

```
systemd-cgls
```

shows tree

```
ps xawf
```

tree processes

```
ln -sf /usr/lib/systemd/system/multi-user.target /etc/systemd/system/default.target
```

*

```
systemctl get-default
```

Default targets

/etc/systemd/system/default.target
/usr/lib/systemd/system/default.target
install dirs

journalctl -xe
last error

the command

systemctl enable watchmen
shows link creation

Created symlink /etc/systemd/system/multi-user.target.wants/watchmen.service -> /usr/lib/systemd/system/watchmen.service.

9 Demote Desktop

9.1 X2GO

pacman -S x2goserver
Datenbank ist nicht da

x2godbadmin –createdb
LXDE Nachinstallieren

pacman -S lxde
Erfolg: LXDE Verbindung aufbauen über Android x2go Client auf chromebook

Publisched Applications

9.1.1 Doc from x2go:

Where to control the application menu

On the X2Go Server you can control the applications displayed on the Published applications menu by adding, removing or controlling access to the files in /etc/x2go/applications/.

:!: Note that this is by default a symlink to /usr/share/applications!

You may change the destination of the symlink as you please, or replace it with a directory, if you don't want to mess with the files in /usr/share/applications.

9.2 Ohne lxde

pacman -S x2goserver
x2godbadmin –createdb
pacman -S audacity
pacman -S geany
Publisched Applications kopiert:

geany läuft; audacity nicht (kein log auffindbar)

9.3 xterm

pacman -S xterm
After installing xterm x2go can make terminal connections

10 Other Linux commands

10.1 Default user

alarm/alarm

root/root

10.2 Commands

netstat -a -tcp -n
ps -aux
ip link show

modprobe b43
xscreensaver-demo # to disable
mount //qnap/public qn

only root can write

sudo mount -t cifs -o vers=2.0,username=otto,password=geheim //192.168.1.100/Tausch /media/austausch

CAN-Bus

ip link add type vcan
ip link add dev vcan42 type vcan
ip link del vcan42

Works on Raspi

Open Port in firefox for watchmen

about:config

network.security.ports.banned.override value:portnumber

11 ToDo

Systemd start

lxde

as

watchmen

lxde starts for test programms

config.txt as add logic

how to get alarm by name

pacman –noconfirm

must be root in script start

arch wiki font configuration

No session for pid / error message lxde by systemd

12 Links

12.1 alarm

http://archlinuxarm.org

https://archlinuxarm.org/platforms/armv8/broadcom/raspberry-pi-3

List of all os

http://os.archlinuxarm.org/os/

Hints about X Server

https://wiki.archlinux.org/index.php/xorg

12.2 OpenJDK

https://wiki.openjdk.java.net/display/OpenJFX/Monocle

https://wiki.openjdk.java.net/display/OpenJFX/Font+Setup

https://wiki.openjdk.java.net/display/OpenJFX/OpenJFX+on+the+Raspberry+Pi

https://wiki.openjdk.java.net/display/OpenJFX/Platforms

https://wiki.openjdk.java.net/display/OpenJFX/Touch+screen+calibration+on+embedded+platforms

https://openjfx.io/javadoc/11/

12.3 Liberica jre

Company

https://www.bell-sw.com/

List of all releases

https://github.com/bell-sw/Liberica/releases/

12.4 Azul Zulu

https://www.azul.com/downloads/zulu/

https://www.azul.com/downloads/zulu/zulufx/

kein arm

12.5 Other

https://www.b4x.com/android/forum/threads/raspberry-pi-b4j-ui-applications-with-liberica-jdk.92950/

12.6 systemd

https://de.wikipedia.org/wiki/Systemd

https://en.wikipedia.org/wiki/Systemd

https://www.freedesktop.org/wiki/Software/systemd/

!

https://www.freedesktop.org/wiki/Software/systemd/TipsAndTricks/

https://wiki.archlinux.org/index.php/systemd

https://www.freedesktop.org/software/systemd/man/systemd.unit.html

12.7 Hints

WorkEnvironement/Doc/Javarpi2_alarm.odt