

Java FX on ARM

Inhaltsverzeichnis

1 Tries.....	2
1.1 Discontinue oracle.....	2
1.2 Download sources.....	2
1.3 Success.....	3
1.4 Old fx hint by oracle.....	4
1.5 Other sources OpenJDK build.....	5
1.5.1 gluon.....	5
2 Try compile OpenJFX.....	6
2.1 OS (Install development host).....	6
2.2 Preparation / additional install.....	6
2.3 Compile (dolt).....	7
2.4 Results.....	8
3 Steal OpenJFX from Ubuntu Mate.....	9
3.1 Background info.....	9
3.1.1 Packages and dependencies for OpenJFX.....	9
3.1.2 Get Ubuntu Mate running on raspi.....	10
3.1.3 Location.....	10
3.1.4 Test result.....	10
3.2 Hints for Start parameter.....	11
3.3 Properties file.....	11
3.3.1 tar dir.....	12
3.3.2 Filelist gluon and chris_who_codes.....	12
4 Usage styles.....	14
4.1 Using xenial binaries.....	14
5 Questions.....	15
6 Appendix.....	15
6.1 Commands.....	15
6.1.1 Show library dependencies.....	15
6.2 Links.....	15
6.3 Mail.....	17

1 Tries

1.1 *Discontinue oracle*

<https://jaxenter.de/ende-javafx-embedded-13340>

<http://mail.openjdk.java.net/pipermail/openjfx-dev/2015-January/016570.html>

1.2 *Download sources*

Main text

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

Link for 8

<https://jdk8.java.net/download.html>

gives

jdk-8u102-ea-bin-b02-linux-arm-vfp-hflt-11_apr_2016.tar.gz

and

javafx_samples-8u102-ea-b02-windows-11_apr_2016.zip

javafx_samples-8u102-ea-b02-linux-11_apr_2016.zip

does not run fx

Platform link:

<http://www.oracle.com/technetwork/java/javase/certconfig-2095354.html>

Link for 9

<https://jdk9.java.net/>

<https://jdk9.java.net/download/>

gives

jdk-9-ea+113_linux-arm32-vfp-hflt_bin.tar.gz

and

javafx-9_linux-x86_demo.zip

does not run fx

Platform link:

https://jdk9.java.net/jdk9_supported_platforms.html

Symptom :

ldd libjfxwebkit.so

not a dynamic executable

cross check

ldd libawt.so

gives a correct answer list

1.3 Suxxess

Start Raspbian

Stop Gui with

init 3

Copy standard jre from Raspbian into separate dir

add gluon files

Start

rc/bin/java -jar Ensemble8.jar

!!!!run with touch

1.4 *Old fx hint by oracle*

<https://docs.oracle.com/javase/8/embedded/develop-apps-platforms/headful.htm>

Included packages

- javafx.animation Animation
- javafx.application Lifecycle
- javafx.beans JavaFX beans
- javafx.beans.binding JavaFX bean property binding
- javafx.beans.property Read-only and read-write bean properties
- javafx.beans.value Observable and writable values
- javafx.collections JavaFX observable collections
- javafx.concurrent Threading classes
- javafx.css Styleable properties
- javafx.event Event handling
- javafx.geometry 2D and 3D
- javafx.scene Scene graph core
- javafx.scene.canvas Immediate mode rendering
- javafx.scene.effect Visual effects
- javafx.scene.image Loading and displaying images
- javafx.scene.input Input events
- javafx.scene.layout Scene layout
- javafx.scene.paint Colors and gradients
- javafx.scene.shape 2D and 3D shapes
- javafx.scene.text Text rendering and metrics
- javafx.scene.transform 2D and 3D transformations
- javafx.stage Windowing
- javafx.util Utilities
- javafx.util.converter String converters

- javafx.fxml FXML
- javafx.scene.chart Charts
- javafx.scene.control UI controls
- javafx.scene.control.cell Cells for UI controls

JavaFX Packages not Available in Oracle Java SE Embedded

- javafx.beans.property.adapter Integration with JavaBeans
- javafx.embed.swing Integration with the Swing API
- javafx.embed.swt Integration with the SWT API
- javafx.print Printing
- javafx.scene.media Media playback

javafx.scene.web Web content
netscape.javascript JavaScript integration

The Magic switch:

-Djavafx.platform=directfb

1.5 other sources *ObenJDK build*

Communiti build list

<https://wiki.openjdk.java.net/display/OpenJFX/Community+Builds>

1.5.1 gluon

<http://gluonhq.com/gluon-supports-javafx-embedded-binary-builds-now-available/>

<http://gluonhq.com/open-source/javafxports/downloads/>

<http://108.61.191.178/>

Combine try

chrishocodes and OpenJDK 8

Files

openjfx-8-sdk-overlay-linux-armv6hf.zip

jdk-8u102-ea-bin-b02-linux-arm-vfp-hflt-11_apr_2016.tar.gz

2 Try compile OpenJFX

2.1 OS (*Install development host*)

Install Ubuntu 16.4 LTS

Download image

ubuntu-16.04-desktop-amd64.iso

Burn direct to flash stick

Boot / Install / complete HD

User : manni/manni

```
apt-get install  
mc  
git  
gradle
```

2.2 *Preparation / additional install*

Download gradle as described in QuickStart and put manually in a dir

```
unzip gradle-1.8-all.zip
```

MC is slow

```
apt-get install  
bison  
flex  
gperf  
libasound2-dev  
libgl1-mesa-dev  
libgstreamer0.10-dev  
libgstreamer-plugins-base0.10-dev  
libjpeg-dev  
libpng-dev  
libx11-dev  
libxml2-dev  
libxslt1-dev  
libxt-dev  
libxxf86vm-dev (already newest)  
pkg-config (already newest)  
x11proto-core-dev (already newest)  
x11proto-xf86vidmode-dev (already newest)  
libavcodec-dev  
mercurial (-)  
libgtk2.0-dev (longer)  
ksh  
libxtst-dev  
libudev-dev  
libavformat-dev
```

Try again getting task list

Long action

Nach Fehler rt neu auspacken OHNE root ... dann geht (task list anzeigen)

2.3 Compile (dolt)

Explanation

<http://openjdk.java.net/projects/openjfx/>
<https://wiki.openjdk.java.net/display/OpenJFX/Main>
<https://wiki.openjdk.java.net/display/OpenJFX/Quick+Start>

unzip rt-.....rzip

jdk NICHT mit apt-get installieren

gradle all

dont works .. requires jdk without

gradle native

4 min

Start gradle

<https://docs.gradle.org/current/userguide/userguide.pdf>

Important: set environment Variables

<https://docs.gradle.org/current/userguide/installation.html>

After suxessfull start downloads and compiles a lot of files

Download

<http://hg.openjdk.java.net/openjfx>

click on 8u60 rt

Download zip (left top)

Remove fx from jdk

Files to delete

```
+---lib
|   javafx-mx.jar
|   packager.jar
|   ant-javafx.jar
\---jre
    \---lib
        |   javafx.properties
        |   jfxswt.jar
        |   javafx.platform.properties
```

```
+---ext
|   jfxrt.jar
\---arm
    libprism_sw.so
    libdecora_sse.so
    libprism_es2_eglfb.so
    libjavafx_font_pango.so
    libprism_common.so
    libfxplugins.so
    libglass_monocle.so
    libjavafx_font_freetype.so
    libgstreamer-lite.so
    libjfxwebkit.so
    libjavafx_font.so
    libglass.so
    libprism_es2_monocle.so
    libjfxmedia.so
    libglass_monocle_x11.so
    libjavafx_iio.so
```

Compile results for linux64 found

<https://wiki.openjdk.java.net/display/OpenJFX/Building+OpenJFX>
<https://wiki.openjdk.java.net/display/OpenJFX/Cross+Building+for+ARM+Hard+Float>

Preparing crosslibs and toolchain

```
mkdir tmp
cd tmp
../buildSrc/crosslibs/crosslibs-armv6hf.sh
# check to see that ../../crosslibs is present
ls ../../crosslibs
#and if it is
cd ..
rmdir tmp
```

creates crosslibs outside rt with toolchain and arm binary libs

build failed ... must add install for executing 32 bit toolchain

```
sudo apt-get install gcc-multilib g++-multilib zlib1g-dev:i386
```

generates results

combine with jre from openjdk 8u102

starts at arch linux but crashes at font load

2.4 Results

3 Steal OpenJFX from Ubuntu Mate

3.1 Background info

3.1.1 Packages and dependencies for OpenJFX

Arch Linux

<https://www.archlinux.org/packages/extra/i686/java-openjfx/>

Arch Linux arm packages with OpenJDK and armv7h

jre8-openjdk-headless	8.u92-1	OpenJDK Java 8 headless runtime environment
jre8-openjdk	8.u92-1	OpenJDK Java 8 full runtime environment

openjdk8-src	8.u92-1	OpenJDK Java 8 sources
jdk8-openjdk	8.u92-1	OpenJDK Java 8 development kit
openjdk8-doc	8.u92-1	OpenJDK Java 8 documentation

Ubuntu Mate xenial openjfx

<http://packages.ubuntu.com/xenial/openjfx>

Filelist

```
/usr/bin/javafxpackager
/usr/lib/jvm/java-8-openjdk-armhf/bin/javafxpackager
/usr/lib/jvm/java-8-openjdk-armhf/bin/javapackager
/usr/lib/jvm/java-8-openjdk-armhf/jre/lib/ext/jfxrt.jar
/usr/lib/jvm/java-8-openjdk-armhf/jre/lib/javafx.properties
/usr/lib/jvm/java-8-openjdk-armhf/jre/lib/jfxswt.jar
/usr/lib/jvm/java-8-openjdk-armhf/lib/ant-javafx.jar
/usr/lib/jvm/java-8-openjdk-armhf/lib/javafx-mx.jar
/usr/lib/jvm/java-8-openjdk-armhf/man/ja_JP.UTF-8/man1/javafxpackager.1.gz
/usr/lib/jvm/java-8-openjdk-armhf/man/ja_JP.UTF-8/man1/javapackager.1.gz
/usr/lib/jvm/java-8-openjdk-armhf/man/man1/javafxpackager.1.gz
/usr/lib/jvm/java-8-openjdk-armhf/man/man1/javapackager.1.gz
/usr/share/doc/openjfx/TODO.Debian
/usr/share/doc/openjfx/changelog.Debian.gz
/usr/share/doc/openjfx/copyright
/usr/share/man/man1/javafxpackager.1.gz
```

depends on

<http://packages.ubuntu.com/xenial/openjdk-8-jre>
<http://packages.ubuntu.com/xenial/libopenjfx-java>

Filelist

```
/usr/share/doc/libopenjfx-java/changelog.Debian.gz
/usr/share/doc/libopenjfx-java/copyright
/usr/share/java/openjfx/jre/lib/ext/jfxrt.jar
/usr/share/java/openjfx/jre/lib/javafx.properties
/usr/share/java/openjfx/jre/lib/jfxswt.jar
/usr/share/java/openjfx/lib/ant-javafx.jar
```

```
/usr/share/java/openjfx/lib/javafx-mx.jar  
/usr/share/java/openjfx/lib/packager.jar
```

<http://packages.ubuntu.com/xenial/libopenjfx-jni>

Filelist

```
/usr/lib/jvm/java-8-openjdk-armhf/jre/lib/arm/libavplugin.so  
/usr/lib/jvm/java-8-openjdk-armhf/jre/lib/arm/libdecora_sse.so  
/usr/lib/jvm/java-8-openjdk-armhf/jre/lib/arm/libfxplugins.so  
/usr/lib/jvm/java-8-openjdk-armhf/jre/lib/arm/libglass.so  
/usr/lib/jvm/java-8-openjdk-armhf/jre/lib/arm/libgstreamer-lite.so  
/usr/lib/jvm/java-8-openjdk-armhf/jre/lib/arm/libjavafx_font.so  
/usr/lib/jvm/java-8-openjdk-armhf/jre/lib/arm/libjavafx_font_freetype.so  
/usr/lib/jvm/java-8-openjdk-armhf/jre/lib/arm/libjavafx_font_pango.so  
/usr/lib/jvm/java-8-openjdk-armhf/jre/lib/arm/libjavafx_iio.so  
/usr/lib/jvm/java-8-openjdk-armhf/jre/lib/arm/libjfxmedia.so  
/usr/lib/jvm/java-8-openjdk-armhf/jre/lib/arm/libjfxwebkit.so  
/usr/lib/jvm/java-8-openjdk-armhf/jre/lib/arm/libprism_common.so  
/usr/lib/jvm/java-8-openjdk-armhf/jre/lib/arm/libprism_es2.so  
/usr/lib/jvm/java-8-openjdk-armhf/jre/lib/arm/libprism_sw.so  
/usr/share/doc/libopenjfx-jni/changelog.Debian.gz  
/usr/share/doc/libopenjfx-jni/copyright
```

3.1.2 Get Ubuntu Mate running on raspi

Ubuntu Mate 2.0 is 16.04 is 'XENIAL' in repos

Trap: don't unpack on FAT32 is 8GB big.

Setup: User: manni/manni

SD Card crashes; use SD Boot to USB

Cmdline: root=/dev/sda2

3.1.3 Location

Link to default jvm

```
/usr/lib/jvm/default-jvm
```

Points to

```
/usr/lib/jvm/....jre
```

3.1.4 Test result

The OpenJFX in ubuntu mate runs only in x-server and has intentionally no javafx.platform.properties file.

When adding the javafx.platform.properties file the run in x-server is odd. If running from console

there are missing binaries. If adding a binary from self compiled, then it starts; but hard to check because reaction to input is irritating.

3.2 Hints for Start parameter

<https://wiki.openjdk.java.net/display/OpenJFX/Running+with+X11+on+embedded+platforms>

```
-Dmonocle.platform=X11
-Dx11.input=true
-Dmonocle.maliSignedStruct=true
-Dmonocle.platform=OMAPX11
```

```
-Dglass.platform=
https://wiki.openjdk.java.net/display/OpenJFX/Building+the+OpenJFX+embedded+stack+for+Linux+desktop
To run using accelerated rendering to an X11 window, use the flags:
-Djavafx.platform=monocle -Dmonocle.platform=X11 -Dembedded=monocle
```

To run using software rendering to a framebuffer, use the flags:
-Djavafx.platform=monocle -Dmonocle.platform=Linux -Dprism.order=sw

Testing

JAVAFX_DEBUG=1 define before start

3.3 Properties file

Location

<>/jre/lib/javafx.platform.properties

ausgewertet in

jre/lin/ext/fxrt.jar!com/sun/javafx/PlatformUtil.class

Suchworte / Stichworte

monocle.glass.platform=Monocle

Properties File generated by incomplete compile try

```
javafx.platform=monocle
monocle.glass.platform=Monocle
monocle.prism.order=es2,sw
monocle.prism.eglfb=true
monocle.prism.lcdtext=false
monocle.prism.maxvram=128m
monocle.prism.targetvram=112m
monocle.use.egl=true
monocle.use.gles2=true
monocle.embedded=monocle
monocle.com.sun.javafx.isEmbedded=true
monocle.doNativeComposite=true
monocle.com.sun.javafx.scene.control.skin.FXVK.cache=true
monocle.prism.glDepthSize=0
monocle.com.sun.javafx.gestures.zoom=true
monocle.com.sun.javafx.gestures.rotate=true
monocle.com.sun.javafx.gestures.scroll=true
gtk.com.sun.javafx.scene.control.skin.ListViewSkin.pannable=true
gtk.com.sun.javafx.scene.control.skin.TreeViewSkin.pannable=true
```

```

gtk.com.sun.javaafx.scene.control.skin.TableViewSkin.pannable=true
gtk.glass.platform=gtk
gtk.prism.order=sw
gtk.com.sun.javaafx.isEmbedded=true
gtk.com.sun.javaafx.scene.control.skin.FXVK.cache=true
gtk.com.sun.javaafx.gestures.zoom=true
gtk.com.sun.javaafx.gestures.rotate=true
gtk.com.sun.javaafx.gestures.scroll=true

```

3.3.1 tar dir

```
tar -z -cf tarname.tar dirname
```

3.3.2 Filelist gluon and chris_who_codes

For comparing filelist of fx add ons compiled by others

gluon

<http://gluonhq.com/open-source/javaafxports/downloads/>

Verzeichnis von c:\MHTemp\gluon\lib

04.04.2016 14:47	39.638	javaafx-mx.jar
------------------	--------	----------------

Verzeichnis von c:\MHTemp\gluon\rt\lib

04.04.2016 14:47	992	javaafx.platform.properties
04.04.2016 14:47	56	javaafx.properties
04.04.2016 14:47	521	jfxswt.jar

Verzeichnis von c:\MHTemp\gluon\rt\lib\arm

04.04.2016 14:47	61.192	libdecora_sse.so
04.04.2016 14:47	151.083	libfxplugins.so
04.04.2016 14:47	194.280	libglass.so
04.04.2016 14:47	31.428	libglass_monocle.so
04.04.2016 14:47	15.946	libglass_monocle_x11.so
04.04.2016 14:47	1.774.084	libgstreamer-lite.so
04.04.2016 14:47	14.950	libjavaafx_font.so
04.04.2016 14:47	22.409	libjavaafx_font_freetype.so
04.04.2016 14:47	19.904	libjavaafx_font_pango.so
04.04.2016 14:47	218.710	libjavaafx_iiio.so
04.04.2016 14:47	229.428	libjfxmedia.so
04.04.2016 14:47	57.437.048	libjfxwebkit.so
04.04.2016 14:47	42.591	libprism_common.so
04.04.2016 14:47	59.068	libprism_es2_eglfb.so
04.04.2016 14:47	53.578	libprism_es2_monocle.so
04.04.2016 14:47	56.508	libprism_sw.so

Verzeichnis von c:\MHTemp\gluon\rt\lib\ext

04.04.2016 14:47	9.762.482	jfxrt.jar
------------------	-----------	-----------

chris_who_codes

<http://chriswhocodes.com/>

Verzeichnis von c:\MHTemp\chris\jre\lib

18.04.2016	14:12	992	javafx.platform.properties
18.04.2016	14:12	55	javafx.properties
18.04.2016	14:12	38.816	jfxswt.jar

Verzeichnis von c:\MHTemp\chris\jre\lib\arm

18.04.2016	14:12	61.200	libdecora_sse.so
18.04.2016	14:12	151.083	libfxplugins.so
18.04.2016	14:12	194.288	libglass.so
18.04.2016	14:12	31.428	libglass_monocle.so
18.04.2016	14:12	15.946	libglass_monocle_x11.so
18.04.2016	14:12	1.774.212	libgstreamer-lite.so
18.04.2016	14:12	14.950	libjavafx_font.so
18.04.2016	14:12	23.301	libjavafx_font_freetype.so
18.04.2016	14:12	20.564	libjavafx_font_pango.so
18.04.2016	14:12	218.710	libjavafx_iiio.so
18.04.2016	14:12	229.428	libjfxmedia.so
18.04.2016	14:12	57.450.616	libjfxwebkit.so
18.04.2016	14:12	42.591	libprism_common.so
18.04.2016	14:12	59.647	libprism_es2_eglfb.so
18.04.2016	14:12	54.157	libprism_es2_monocle.so
18.04.2016	14:12	56.508	libprism_sw.so

Verzeichnis von c:\MHTemp\chris\jre\lib\ext

18.04.2016	14:12	9.752.364	jfxrt.jar
------------	-------	-----------	-----------

Verzeichnis von c:\MHTemp\chris\lib

18.04.2016	14:12	1.150.682	ant-javafx.jar
18.04.2016	14:12	39.638	javafx-mx.jar
18.04.2016	14:12	5.095	packager.jar

Verzeichnis von c:\MHTemp\chris\man\ja_JP.UTF-8\man1

18.04.2016	14:12	32.359	javafxpackager.1
18.04.2016	14:12	32.362	javapackager.1

Verzeichnis von c:\MHTemp\chris\man\man1

18.04.2016	14:12	27.517	javafxpackager.1
18.04.2016	14:12	27.517	javapackager.1

4 Usage styles

4.1 *Using xenial binaries*

Take the binaries from ubuntu mate, and combine with jre8-openjdk from arch linux and run as default app in x-server instead of window manager.

call it

```
jre_xenial
```

5 Questions

What different Versions of ARM Linux exists ?

Are there hybrid linuxes (Raspbian)?

How to identify a linux (when in linux) ?

How to identify binaries ? Exe and libs? Even when in windows; by hex dump

6 Appendix

6.1 Commands

6.1.1 Show library dependencies

```
ldd  
ldd -r  
ldd -f  
readelf -d  
elfdump
```

needs

```
pacman -S binutils
```

ldd sagt nix; readelf -d sagt nicht ob richtig ist

6.2 Links

<http://fxexperience.com/>

<http://www.oracle.com/technetwork/articles/java/raspberrypi-1704896.html>

<https://docs.oracle.com/javase/8/embedded/release-notes/>

nicht der richtige

<https://docs.oracle.com/javase/8/embedded/develop-apps-platforms/javafx.htm>

thats it

<https://docs.oracle.com/javase/8/embedded/develop-apps-platforms/headful.htm>

gluon install hint

<http://docs.gluonhq.com/javafxports/>

Cross build javaFX on iMX6

<http://mail.openjdk.java.net/pipermail/openjfx-dev/2015-July/017620.html>

Hints on using fx add on

<http://docs.gluonhq.com/javafxports/>

6.3 Mail

JavaFX and JDK for ARM

Kevin Rushforth [kevin.rushforth at oracle.com](mailto:kevin.rushforth@oracle.com)

Wed Jan 28 22:00:21 UTC 2015

- Previous message: [AcceleratedScreen](#)
- Next message: [JavaFX and JDK for ARM](#)
- Messages sorted by: [\[date \]](#) [\[thread \]](#) [\[subject \]](#) [\[author \]](#)

Many of you have been asking about the status of JavaFX in Linux/ARM embedded platforms. Starting with 8u33, JavaFX has been removed from both Oracle JDK for ARM and Oracle Java SE Embedded. [1]

This is a resource trade off within Oracle. Included in that difficult trade off decision was the ongoing investment needed to properly support FX in a world where so much the hardware is not standardized -- it really is difficult to have enough hardware and testing resources committed to support FX on ARM. It is important to understand that when we say support, we are not talking about just "running" on a device like the Raspberry PI -- but providing support for paying customers that are almost certainly going to be using hardware that is customized for their embedded product.

This does not mean that FX is going away on other platforms, and hopefully does not mean we will be disappearing from ARM completely.

The core JavaFX team will continue working on the ARM port as resources permit, hopefully with involvement of members of the OpenJFX community. We have continued to demonstrate this commitment with the moving all of the JavaFX sources to OpenJFX, and maintaining an up to date OpenJFX Wiki which includes detailed articles on building for ARM.

We will continue to do what we can to make it easier to build and overlay OpenJFX on top of the ARM JDKs.

We hope to arrange for a external build of OpenJFX for ARM so that more people will be able to easily obtain a current build.

Most of the FX source code is shared across all ports, and we will continue to do regular internal builds of linux-armv6hf to ensure that it runs. We will continue to maintain the Monocle glass platform in any case, as we use it for some of our dektop unit tests.

We have received a lot of help from the community -- particularly for iOS and Android. Now we hope we can work together to keep Linux ARM viable and interesting.

-- Kevin Rushforth and David Hill

[1] For more information on the decision, I refer you to the following statement from Dalibor Topic and Donald Smith that Dalibor posted to the Raspberry Pi forum.

<http://www.raspberrypi.org/forums/viewtopic.php?f=81&t=97367&p=678791#p678791>

Apologies for the terse release note regarding this change to the Oracle JDK for ARM and Oracle Java SE Embedded products. Clearly this change should have come with more context.

Starting with Oracle JDK for ARM 8u33 and Oracle Java SE Embedded 8u33, JavaFX Embedded, a port of JavaFX 8 which was only available on Linux/ARM platforms, is not supported, and has been removed from these downloads.

The complete source code for JavaFX Embedded has been contributed to the OpenJFX open source project in the OpenJDK community under the GPL v2 with Classpath exception license. JavaFX development has been done in the OpenJDK open source community for some time now, enabling JavaFX developers to contribute back their changes to the source code, and produce their own OpenJFX binaries for their target platforms under their own responsibility.

JavaFX continues to be provided as a fully supported part of the Oracle JDK 8 product on x86 platforms (Windows, Linux, Mac).

-
- Previous message: [AcceleratedScreen](#)
 - Next message: [JavaFX and JDK for ARM](#)
 - Messages sorted by: [\[date \]](#) [\[thread \]](#) [\[subject \]](#) [\[author \]](#)
-

[More information about the openjfx-dev mailing list](#)