



NOT
DEAD YET

Java on Desktop

ABOUT ME...



GERRIT GRUNWALD

KARAKUN

2012



THE DESKTOP IS
DEAD . . .



... THE FUTURE OF APPLICATIONS ...

...is THE WEB !

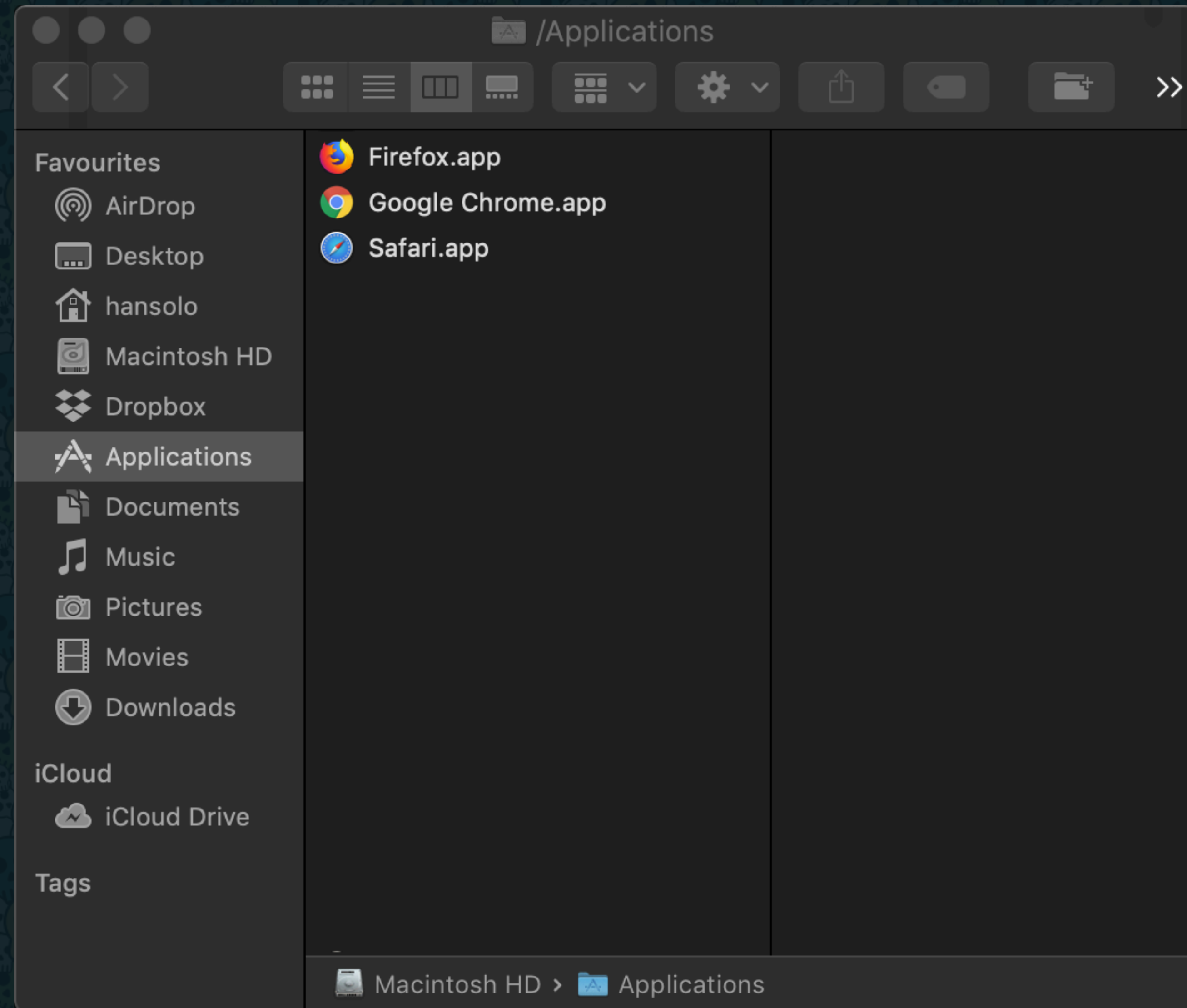
7 YEARS LATER . . .



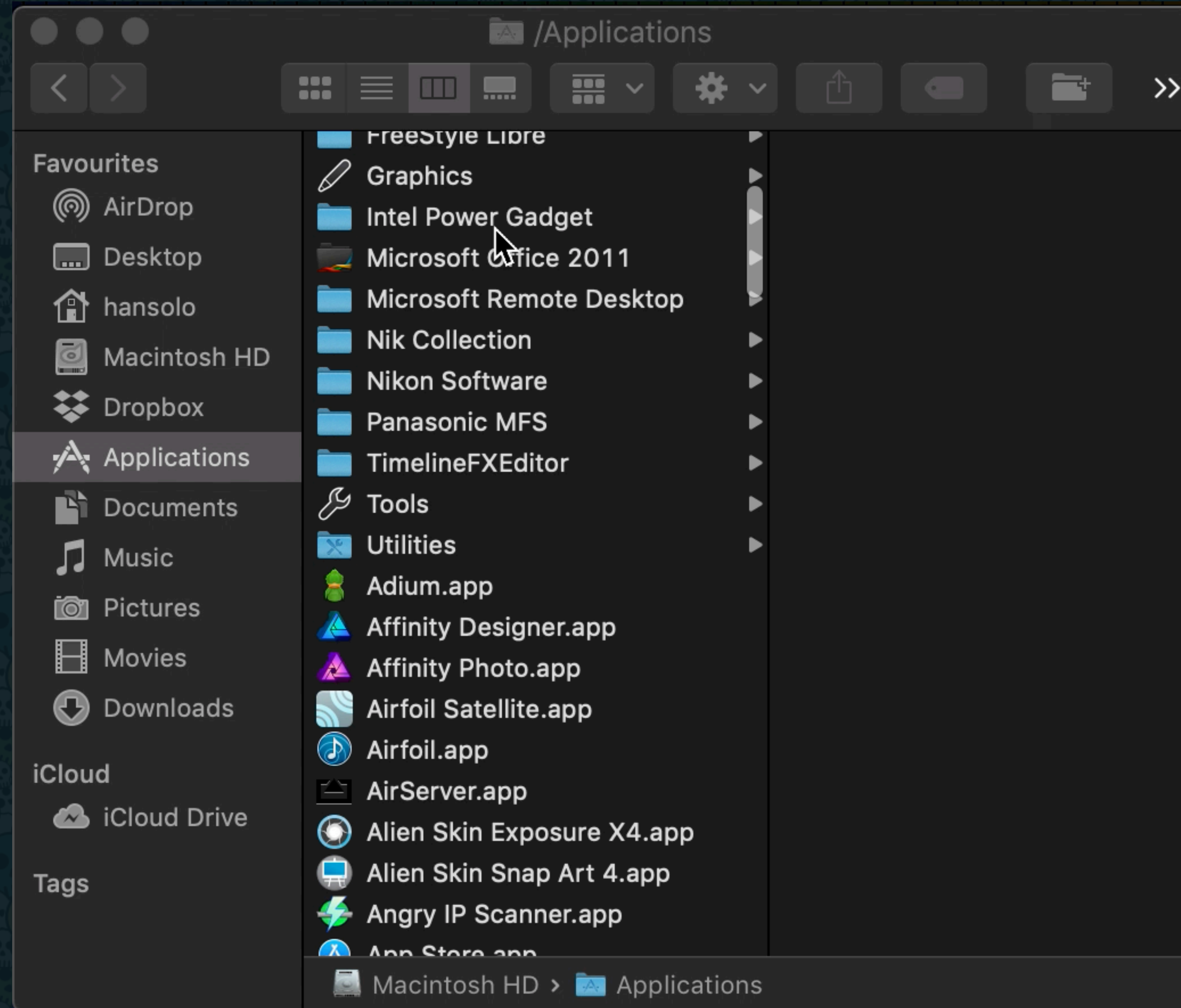
MY APPLICATION

FOLDER . . .

My APPLICATIONS FOLDER (FUTURE)



MY APPLICATIONS FOLDER (REALITY)





???

SEEMS DESKTOP IS NOT
DEAD !

BUT WHAT ABOUT
JAVA ?

AVAILABLE TOOLKITS



AWT

Abstract Window Toolkit

ABSTRACT WINDOW TOOLKIT

- 👤 *Since 1995*
- 👤 *Cross Platform*
- 👤 *Platform dependent*
- 👤 *Bound to native controls*
- 👤 *Interface to native controls*



SWT

Standard Window Toolkit

STANDARD WINDOW TOOLKIT

👤 *Based on IBM Smalltalk from 1993*

👤 *Cross Platform*

👤 *Platform dependent*

👤 *Wrapper around native controls*

JAVA SWING

Successor to AWT

JAVA SWING

☠ *Since Java 1.2 (1998)*

☠ *Cross Platform*

☠ *Platform independent*

☠ *Introduced Look and Feels*

☠ *Emulates the appearance of native controls*

JAVA FX SCRIPT

Intended successor to Swing

JAVA FX SCRIPT

- ☠ *Since Java 1.6 (2008)*
- ☠ *Cross Platform*
- ☠ *Platform independent*
- ☠ *No Java Syntax*
- ☠ *Declarative way to describe UI's* (based on F3 from Chris Oliver)

JAVA FX

Successor to Swing

- 👤 *Since Java 7 (2011)*
- 👤 *Cross Platform*
- 👤 *Platform independent*
- 👤 *Port from JavaFX Script to Java*
- 👤 *Not part of the Java SE distribution since Java 11*

**MOST OF THESE ARE
STILL IN USE . . .**

IS JAVA FX DEAD ?

Is JAVA FX DEAD ?

- 👤 Open Sourced as OpenJFX (openjfx.io)
- 👤 Driven by the community
- 👤 Can run on mobile using Gluon technology (gluonhq.com)
- 👤 Can run on web using JPro technology (jpro.one)
- 👤 Actively developed and is getting new features too



WHERE DOES JAVA ON
DESKTOP SUCK ?





LACK OF 3RD PARTY CONTROLS

Swing had great support over years,
JavaFX lacks behind



MISSING FEATURES...

e.g. JavaFX tableview simply sucks...

MOBILE IS LACKING BEHIND

Even though Gluon does a great job
it's not really on par



U DESIGN TOOLS

Only SceneBuilder for JavaFX and
a handful for Swing, SWT

LACK OF ORACLE SUPPORT

It feels like Oracle has no interest in
Java desktop technology

NATIVE LOOKING UIs

A pain in the A* in Swing and
also not easy in JavaFX

OpenGL / DirectX

JavaFX still doesn't offer access
to OpenGL or DirectX

HEAVY WEIGHT

Fat clients tend to be quite heavy weight in terms of memory and CPU

COSTS

Most JS frameworks are for free,
Gluon and Jpro are not

UPDATES

Updating a desktop application is
not standardized in general

DEPLOYMENT

Installation on each and
every client machine

ANYONE WEBSTART?



OpenWebStart.com

Use WebStart in Java 11
and above

ADMIN RIGHTS

Windows requires admin rights
to install

LACK OF UI DEVELOPERS

Hard to find good UI developers
for Java desktop apps



WHERE DOES JAVA ON
DESKTOP SHINE ?



ONE PLATFORM

Runs on Windows, Mac, Linux,
iOS, Android, Embedded and even Web

JUST WORKS

~90% of the functionality comes
with the core libraries

EASY UI STYLING

With CSS it's easy to style a
JavaFX based application

CUSTOMIZED WINDOWS

Not bound to browser window
(e.g. irregular shaped windows etc.)

COMPLEX APPLICATIONS

Handling large data
e.g. for visualization

STAY ON THE SAME PLATFORM

Same IDE, test frameworks, build tools,
dependency management etc.
on server and client

RE~USE CODE/LIBRARIES

The same code/libraries can be used
on server and client side



CONCURRENCY

Multithreading and concurrency
are well supported



JNI / JNA

Accessing native APIs like system tray,
multiple monitors etc. through JNI/JNA

(Future -> Project Panama)

DRAG AND DROP

Use drag and drop between windows,
desktop and file system

NETWORK PROGRAMMING

Use of UDP, Sockets, Websockets, SNMP,
DNS, Bluetooth, USB etc.



EASY INTERNATIONALIZATION

Easy to make your application available
in different languages



OFFLINE CAPABLE

No additional effort needed to
run offline applications

HARDWARE ACCELERATED

Processing / visualizing large amounts
of data which is crucial for
research and science apps

RUNS ON MOBILE

With Gluon it is possible to run JavaFX on
mobile, desktop and embedded

RUNS ON WEB

With JPro it is possible to run JavaFX
applications on the browser

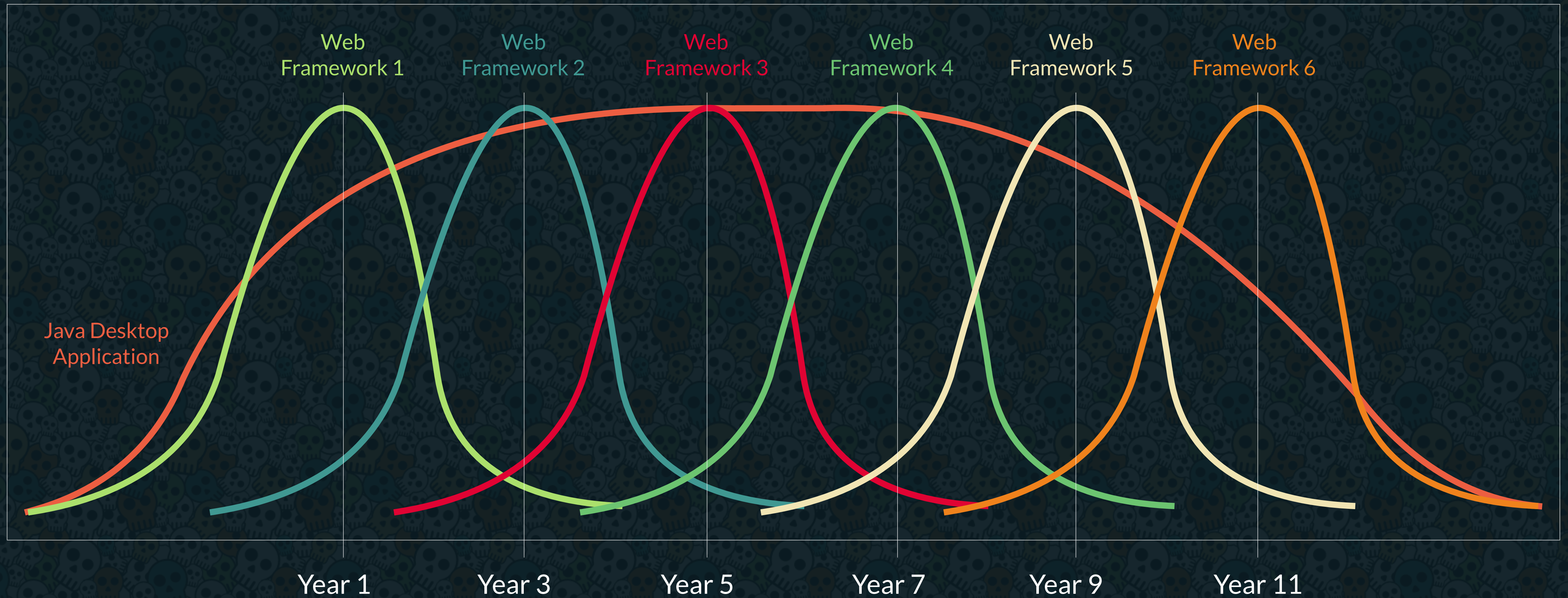
STABLE APIs


Some code can run for years

APPLICATION LIFECYCLE

Because of the stable APIs the application lifecycle can be in the range of decades

APPLICATION LIFECYCLE





TYPICAL ENVIRONMENTS

TYPICAL ENVIRONMENTS

 *Insurance*

 *Banks*

 *Industry*

 *Scientific*

 *Military*

 *Trading*

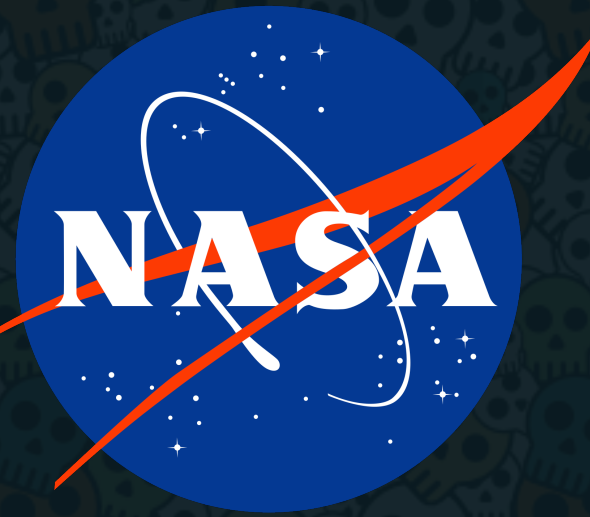
 *Aviation*

 *Space & Defence*

 *Medical*

 *Automotive*

WHO IS USING IT ?

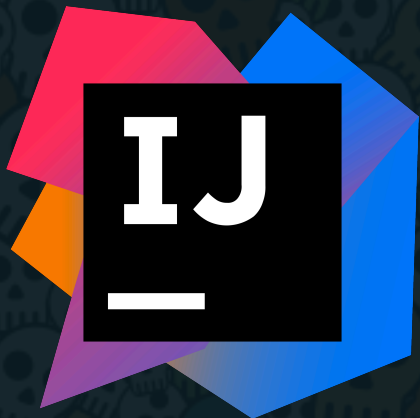


Audi

automotive
engineering



contship italia



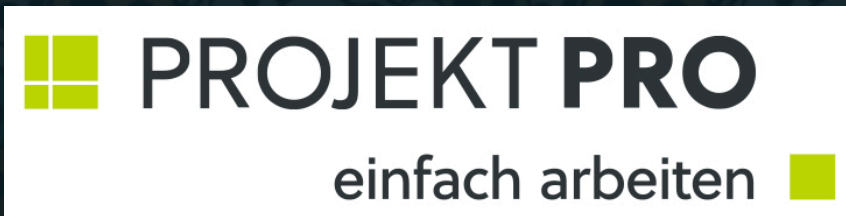
Microsoft



ergon



SICK
Sensor Intelligence.



Karakun

AND MANY MORE . . .



JAVA ON DESKTOP

is DEAD



JAVA ON DESKTOP

IS NOT DEAD YET !!!

OK . . . BUT . . .

WHY IS IT NOT TAKEN
INTO ACCOUNT.....?



HYPE DRIVEN DEVELOPMENT

HYPE DRIVEN DEVELOPMENT

1. TECHNOLOGY DECISION

HYPE DRIVEN DEVELOPMENT

2. SOLVE THE PROBLEM



REQUIREMENTS DRIVEN DEVELOPMENT

REQUIREMENTS DRIVEN DEVELOPMENT

1. UNDERSTANDING THE PROBLEM

REQUIREMENTS DRIVEN DEVELOPMENT

2. TECHNOLOGY DECISION

REQUIREMENTS DRIVEN DEVELOPMENT

3. SOLVE THE PROBLEM



QUESTIONNAIRE MATRIX



Questionnaire matrix	very important	important	not that important	unimportant	Web (-4 - 4)	Desktop (-4 - 4)
License costs		✗			4	-2
Know how of current Java desktop technologies		✗			0	2
Real-time capability				✗	-2	2
Operable via mobile phone / tablet			✗		4	2
Mobile client					4	2
Security	✗				2	4
Data loss due to connectivity			✗		0	2
Offline capable			✗		-2	4
Cross platform availability (Windows, Mac, Linux)	✗				4	3
Complex 2D graphics		✗			3	4
Complex 3D graphics				✗	3	4
Complex calculations in frontend			✗		0	4
Connection quality to backend / database		✗			1	3
Deployment without admin rights			✗		4	-4
Update / deployment of new releases			✗		4	1
Access local connected hardware		✗			-1	3
Access operating system (system tray etc.)		✗			-2	4
Multiple users		✗			4	4
Sum (more points are better)					30	42

SOME EXAMPLES . . .

DESKTOP

MINT

View < not set >

MINT Software Systems

Jobs Help

ADMINISTRATOR

W 48, Sonntag 30.November.14

W 49, Sonntag 7.Dezember.14

Organizations and Customers: 'MINT Samp...'

MINT Sample Organisation

Flight Deck Crew and Training

Cabin Crew and Training

Maintenance Training Organisation (EASA Part-145)

Maintenance Organisation (EASA Part-145)

Production Organisation (EASA Part 21 Subpart G)

Air Traffic Controller Training

Flight School

Helicopter Training

Record Items and Requirements: no selection

Flight Deck Crew (FD)

Flight Deck Crew Instructor Qualifications

Flight Deck Crew Qualifications

Flight Deck Crew Training Records and FORMS

Flight Deck Crew Room and Equipment Qualifications

Flight Deck Roles and Responsibilities

Requirements

Categories: no selection

Products and Tasks

Trainings and Products

Flight Deck Crew (FD)

Cabin Crew (CC)

Cabin Crew Initial Course (all fleets)

Cabin Crew SEP Recurrent Course

Cabin Crew JC BusClass Promotion Course

Cabin Crew FC FirstClass Promotion Course

Cabin Crew Purser Course

Cabin Crew Senior Purser Course

Maintenance Training Organisation (EASA Part-145)

Maintenance Organisation (EASA Part-145)

	Status	Photo	Name	Location	Organisation	Role
178	!		Davinci	Hamburg	Flight School T...	HR
179	!		Boyer	Frankfurt	FG 02	HR
180	!		Cruce	Miami	Helicopter Crew	HR
181	!		Lichten...	Miami	Helicopter Crew	HR
182	!		Frostad	Miami	Helicopter Crew	HR
183	!		Hewlett	Miami	Cabin Crew N...	HR
184	!		Alvarez	Singapore	Flight Deck Cr...	HR
185	!		Elgar	Miami	Cabin Crew	HR
186	!		Duerr	Frankfurt	WG 08	HR
187	!		Elwell	Miami	Helicopter Trai...	HR
188	!		Starkey	Miami	Flight Deck Cr...	HR
189	!		Hemm...	Hamburg	Flight School T...	HR
190	!		Silk	Miami	Helicopter Crew	HR
191	!		Botnick	Miami	Cabin Crew	HR
192	!		Garcia	Miami	Helicopter Crew	HR
193	!		Farleigh	Miami	Helicopter Trai...	HR
194	!		Rivera	Miami	Cabin Crew	HR

	Title	Scheduled Start	Planning Complete	Location
41	MIA-PP...	11.01.2015 16:00	Yes	Miami
42	MIA-M...	04.01.2015 08:30	Yes	Miami
43	S-76 Ini...	01.12.2014 08:00	Yes	Miami
44	S92 Initi...	01.12.2014 08:00	Yes	Miami
45	Bell 412...	01.12.2014 08:00	Yes	Miami
46	HF II	01.12.2014 08:00	Yes	Miami
47	MIA-CB...	18.11.2014 09:00	Yes	Miami

W 48, Sonntag 30.November.14

W 49, Sonntag 7.Dezember.14

Vacation

S-76 Initial7

S92 Initial7

Bell 412 New Hires7

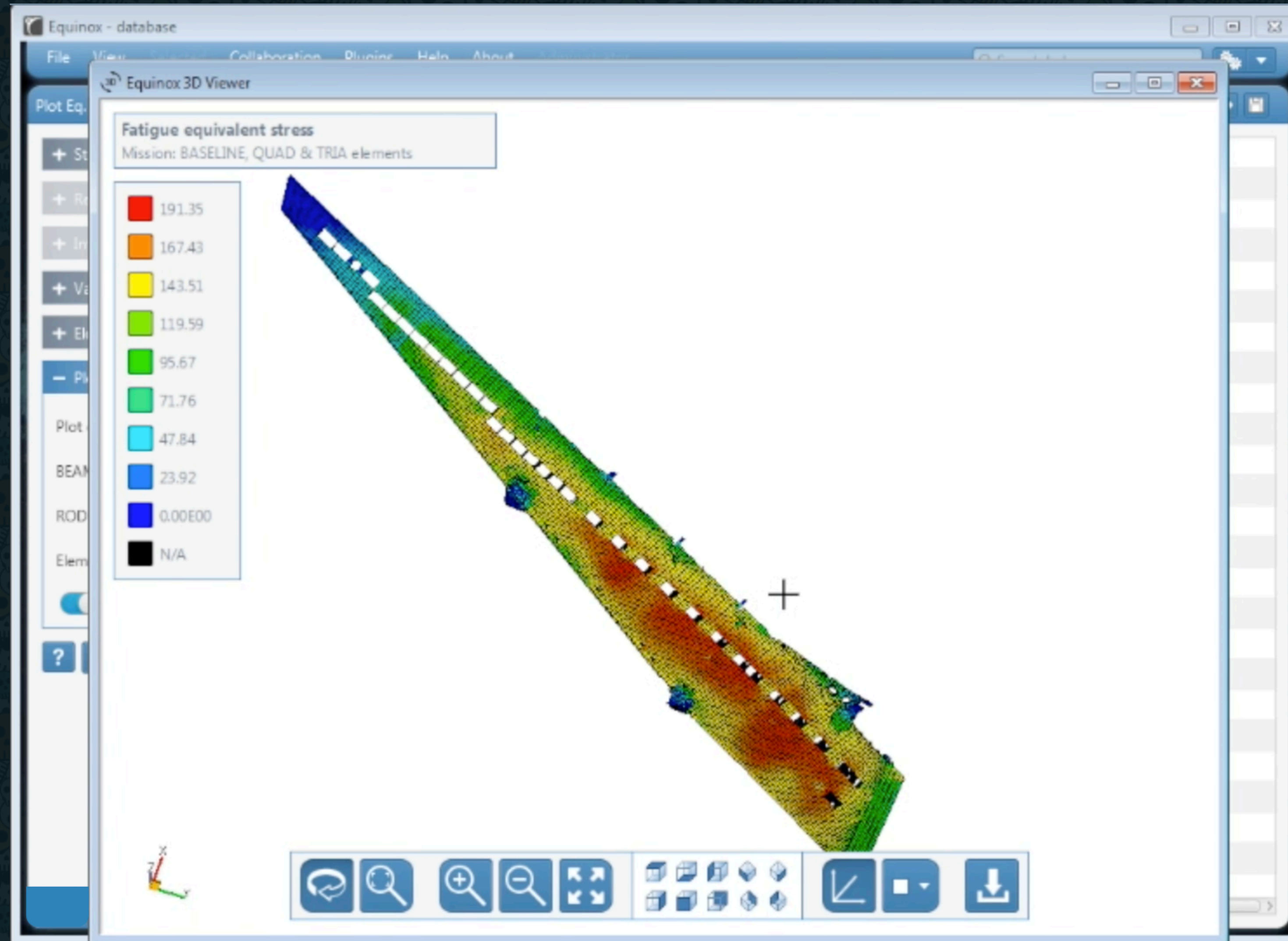
H...

MINT TRMS

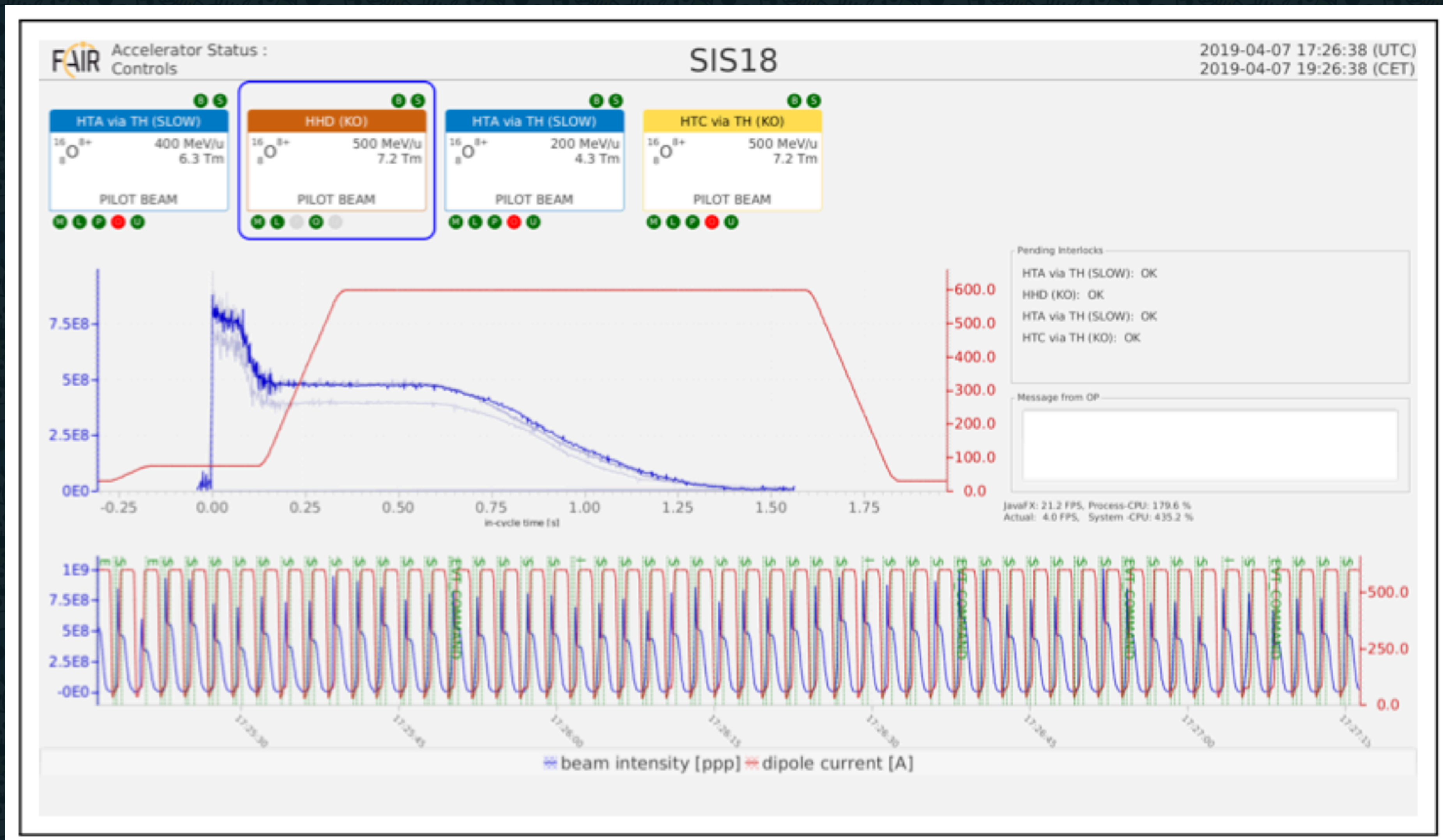


KARAKUN





AIRBUS 3D WING ANALYTICS



GS Heavy Ion Research

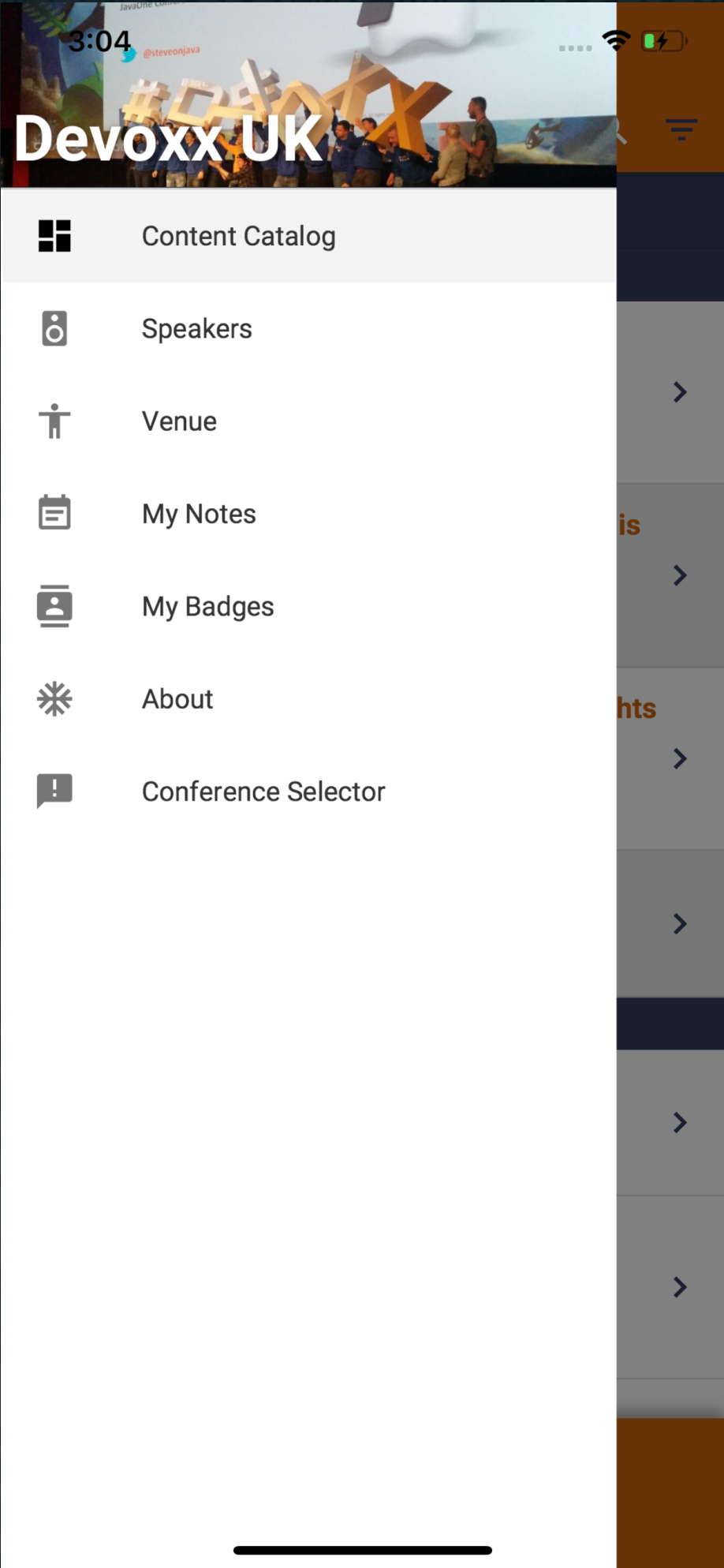
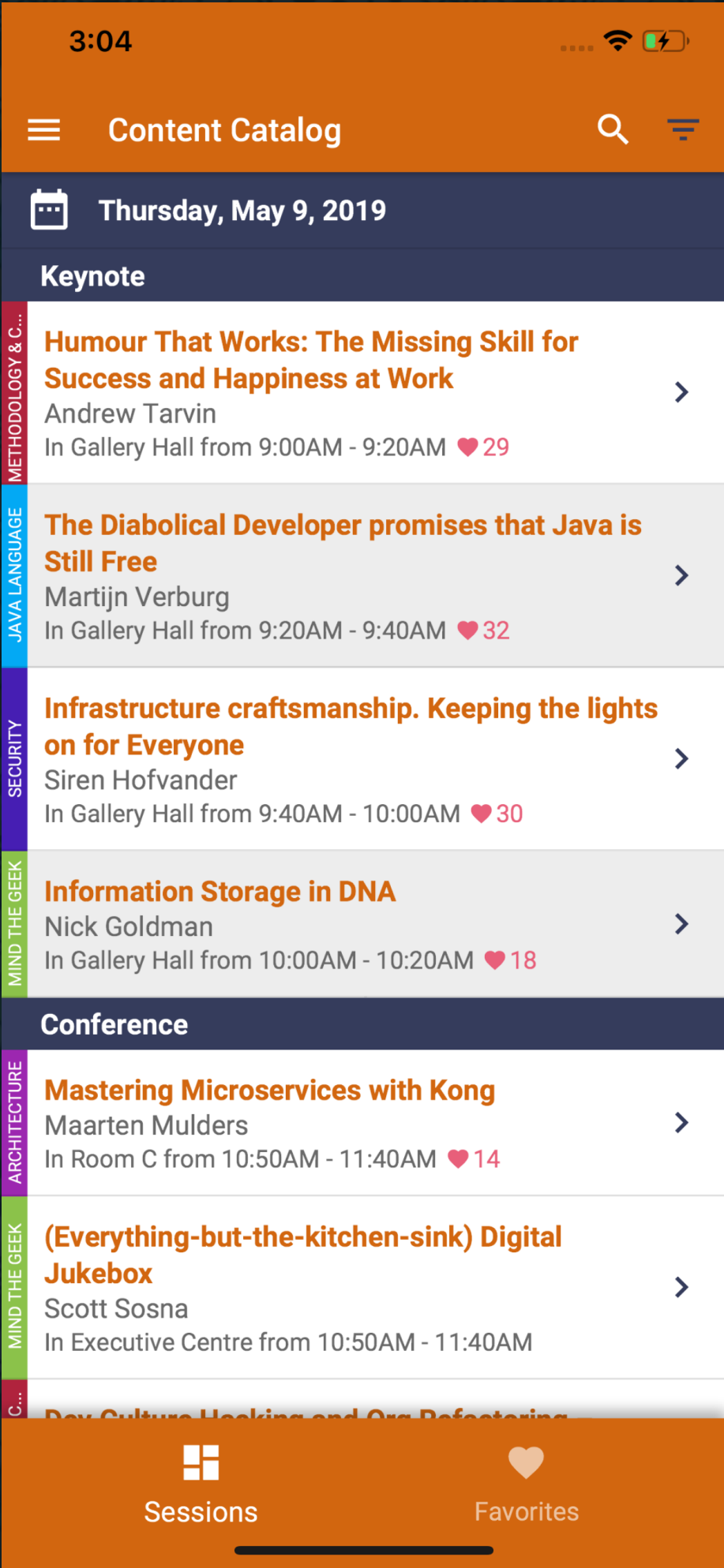


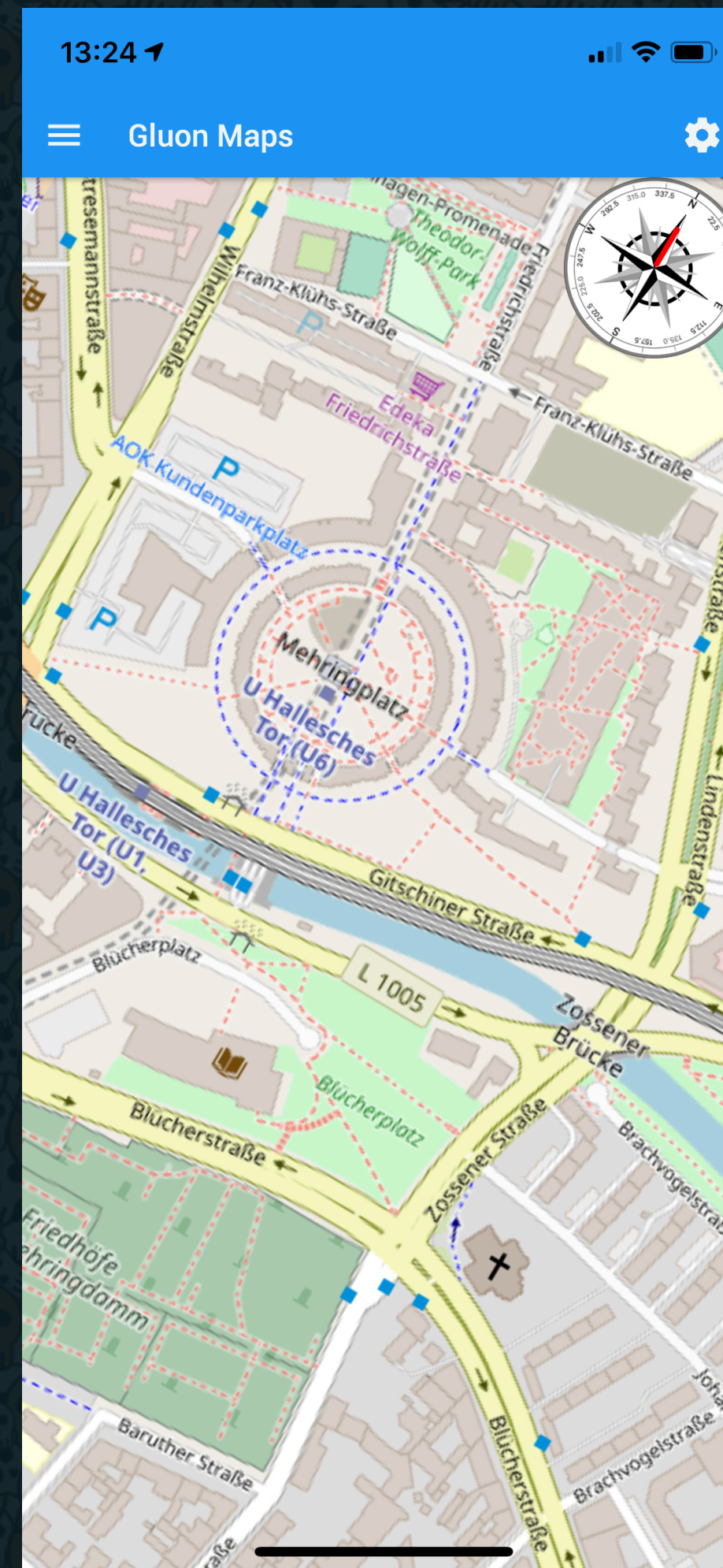
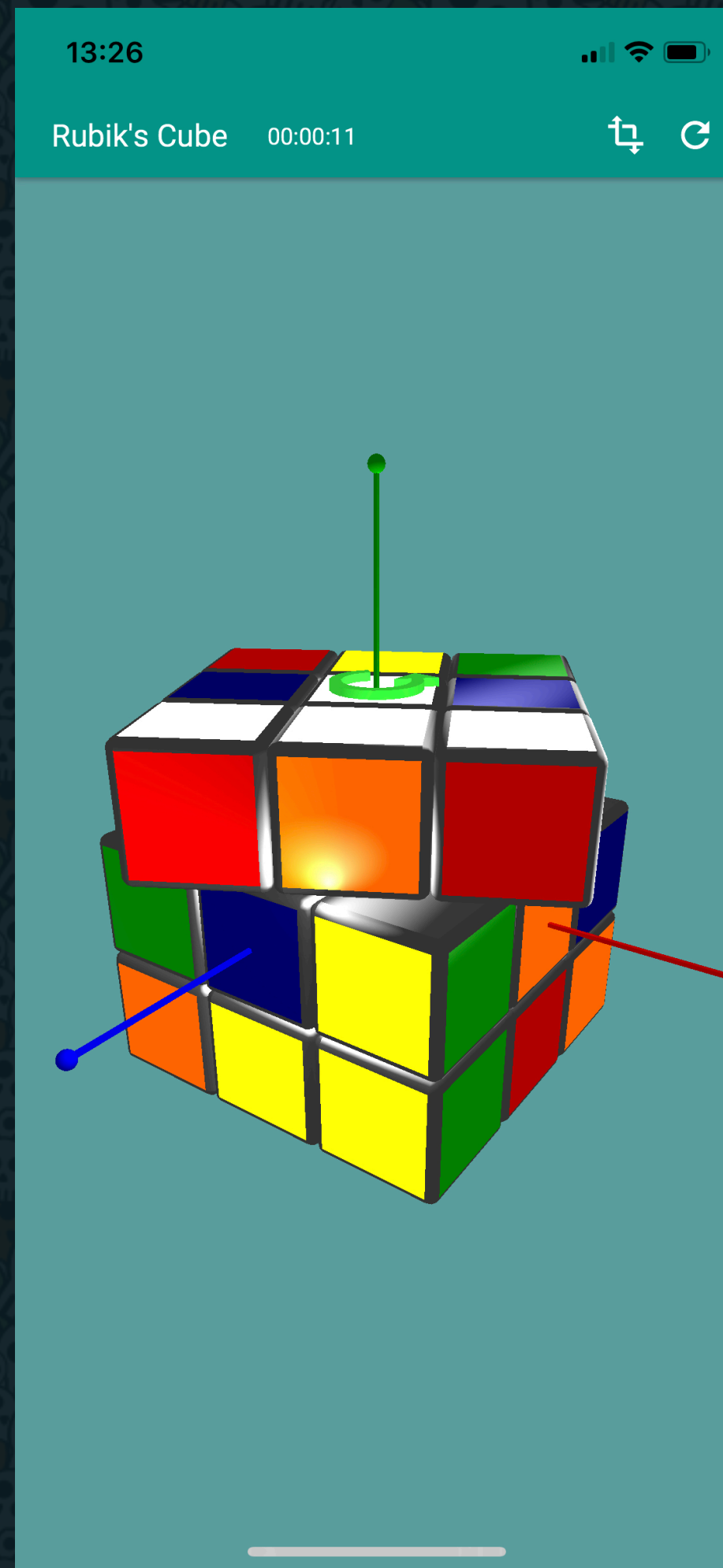
ORACLE Pi CLUSTER MONITORING



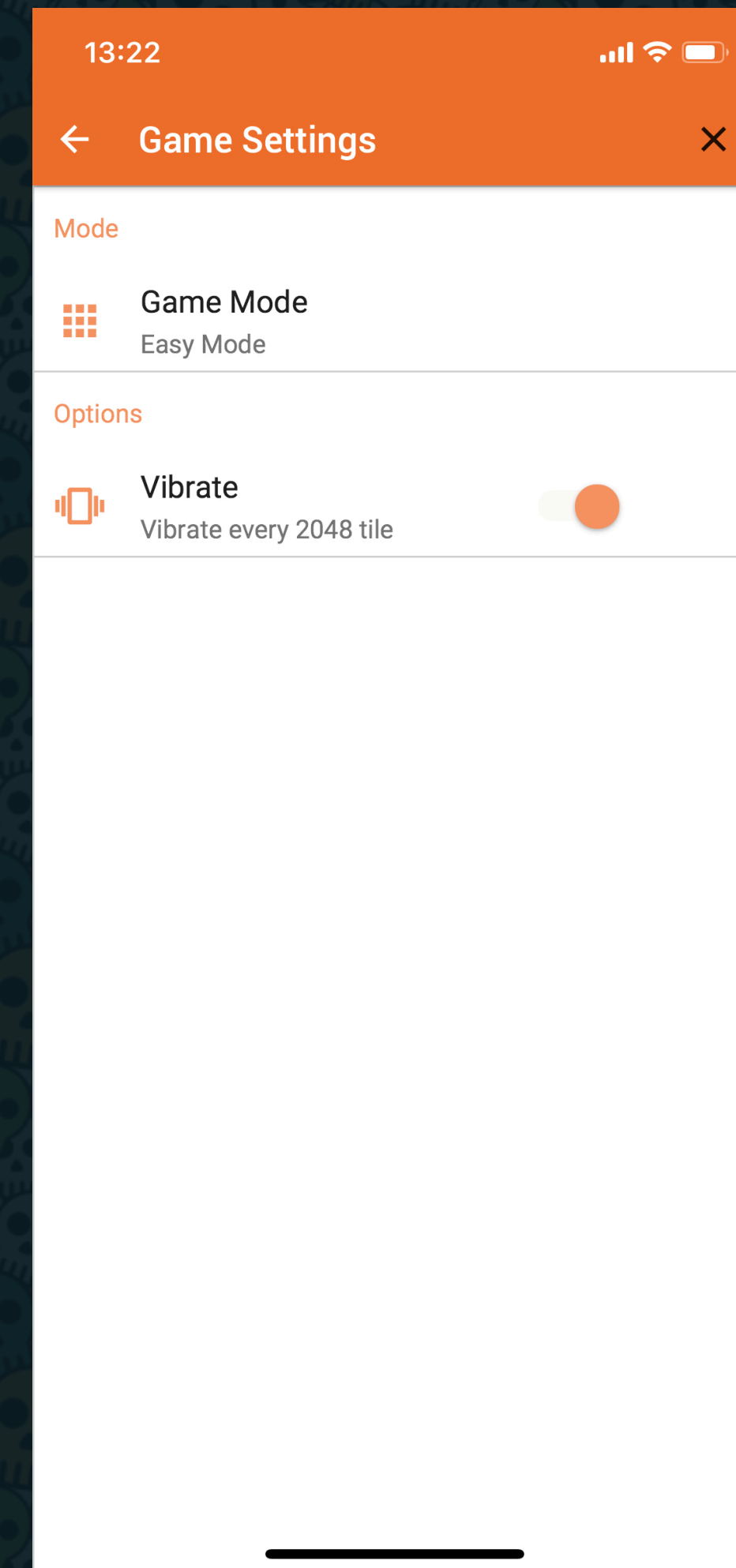
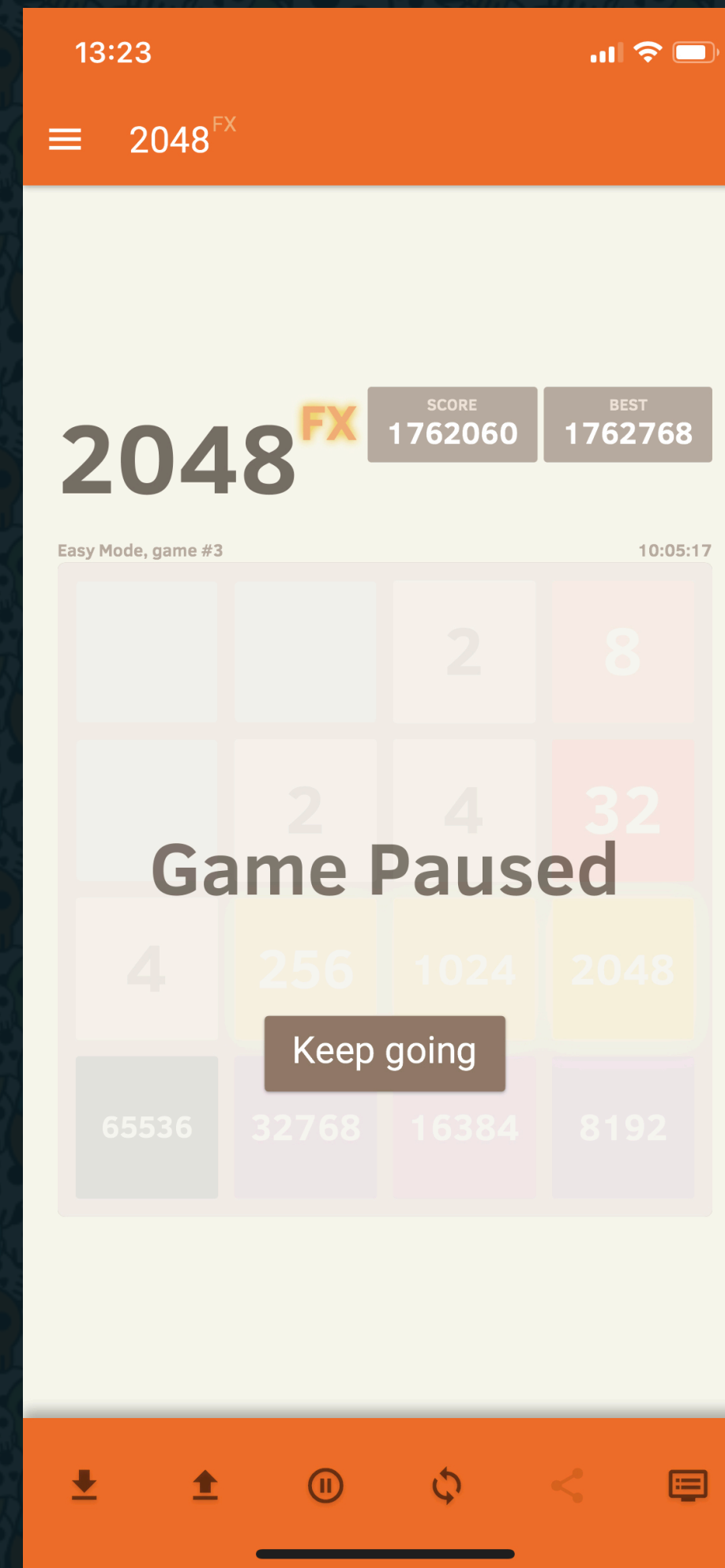
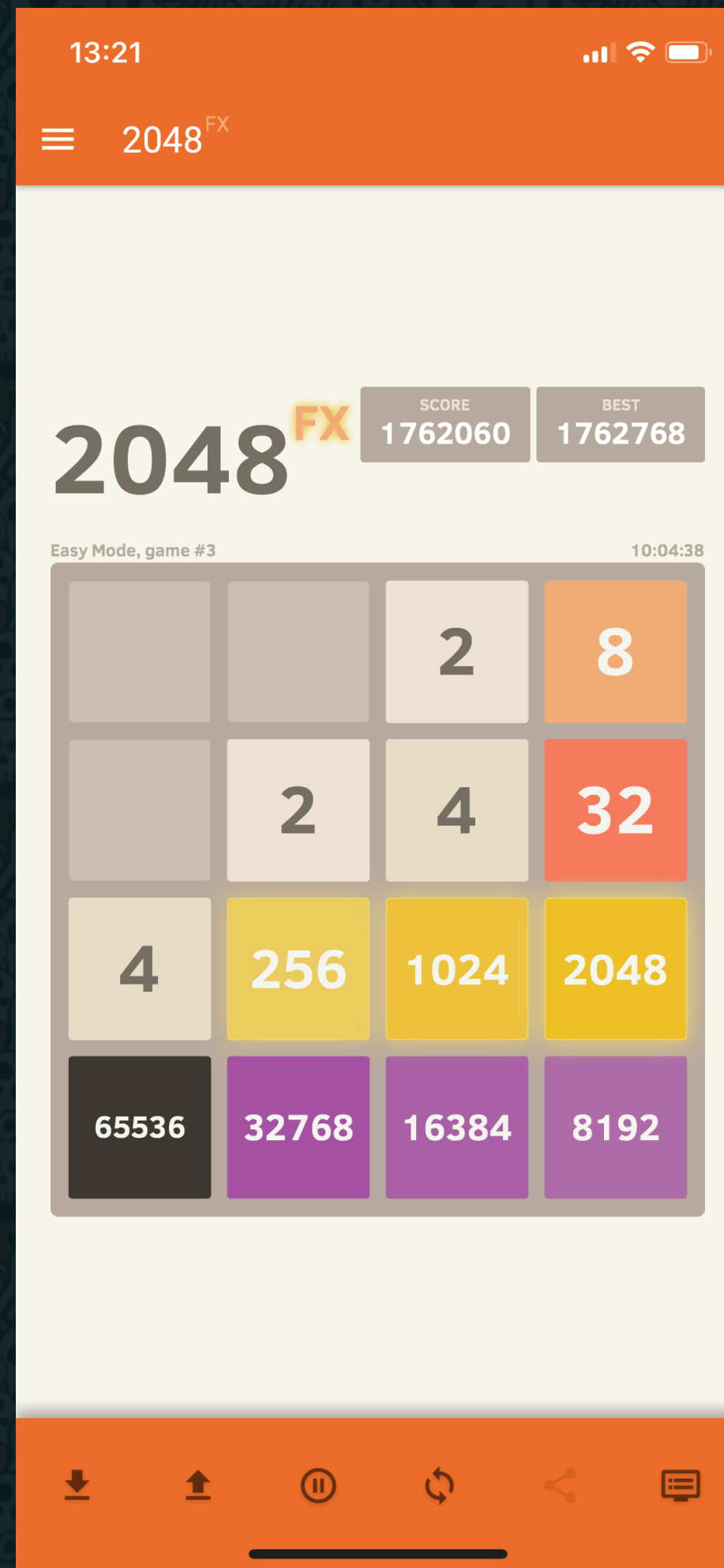
MOBILE

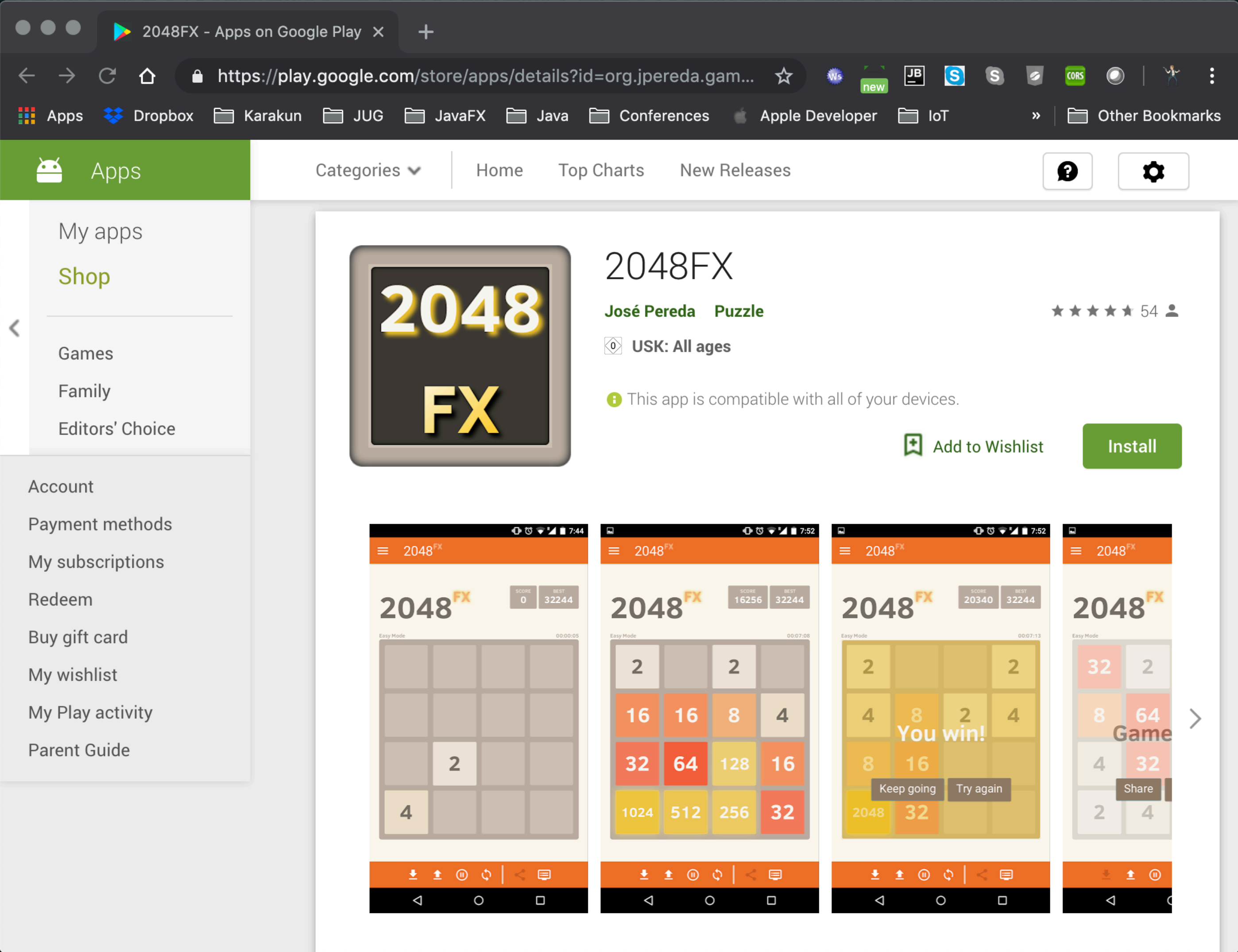
(Gluon Mobile)





JAVA FX ON MOBILE





2048FX IN THE PLAYSTORE

REQUIREMENTS

GLUON MOBILE

REQUIREMENTS GLUON MOBILE

🌺 *Download the IDE plugin for IntelliJ, Eclipse, NetBeans*

🌺 *Start a new Gluon project*

REQUIREMENTS GLUON MOBILE



 src

  android

  desktop

  embedded

  ios

  main

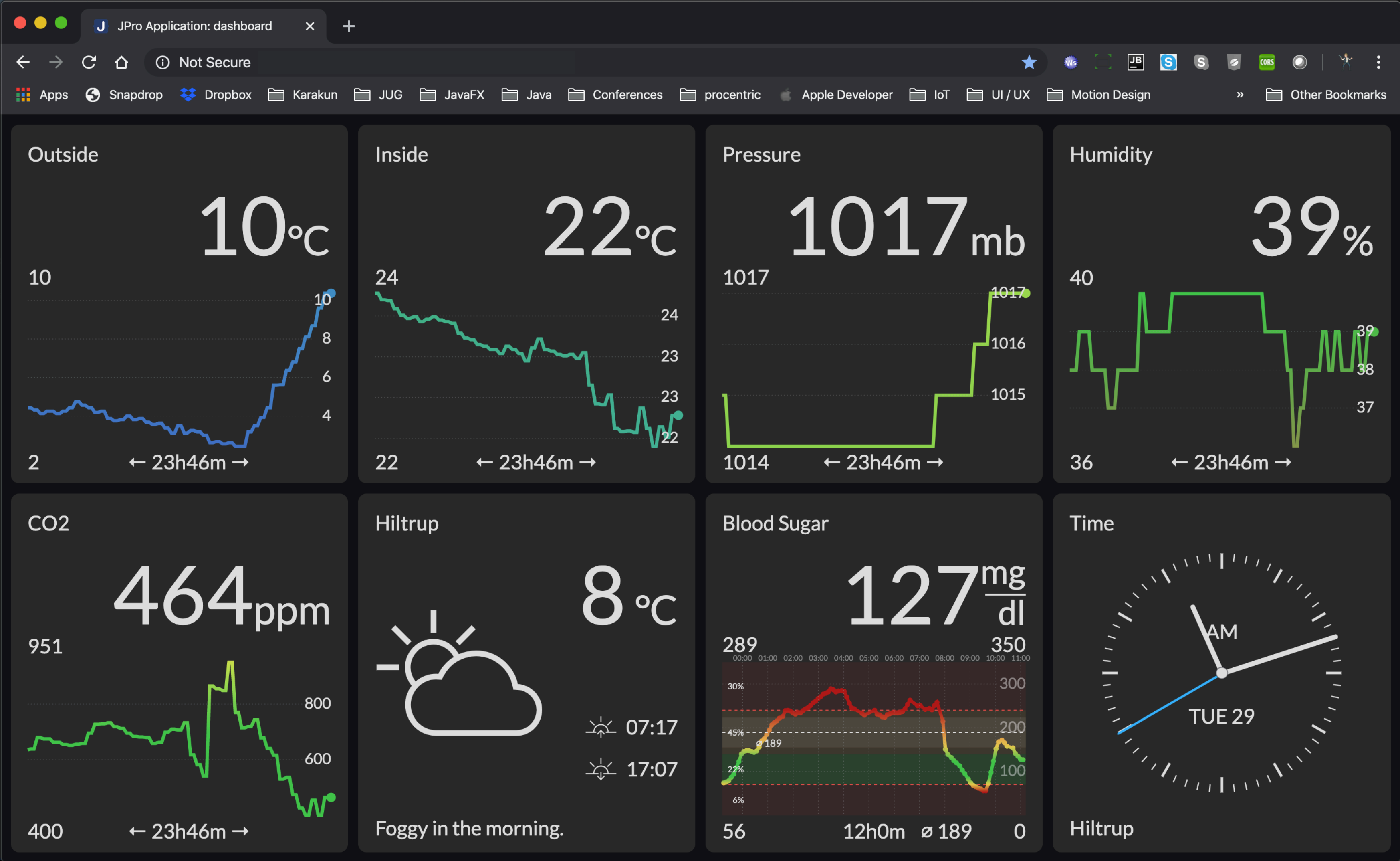
Platform
specific
code

Shared code



WEB

(JPro)



JAVA FX IN THE BROWSER

Product Management

Mar 29, 2019 2:45 PM

Michell Smith
Sales Accountant

Dirk's Tariff 2

Dirk's Tariff 2

Tariff ID: #10268808

APPROVED

Tariff description

She is always right.

EDIT DESCRIPTION

Billing Details

CURRENCY

CHARGED PER 30 MINS

GBP

No

BILLING FREQUENCY

EXIT FEES

Hourly, Daily,
Weekly, Monthly,
Quarterly

£13.0

EDIT BILLING DETAILS

Advanced Options

TIME OF USE RATES:

OFF

CONTRACTED RATES:

OFF

RATE APPLICABILITY:

OFF

TIERED RATES:

OFF

Electricity Tariff (Fixed)

Residential

Expires: March 25, 2021

727 DAYS

About this tariff

This information will help you to compare this tariff with others available.

PRODUCT NAME:

Dirk's Tariff 2

SALES START:

May 1, 2021

SALES END:

March 25, 2020

EXIT FEES:

£ 13

TARIFF COMPARISON RATE (TCR):

(not implemented, yet)

CUSTOMERS USING THIS TARIFF:

12319

The TCR

The TCR can be used to compare the price of energy tariffs across suppliers.

The TCR is not based on actual consumption but is based on the energy consumption of a typical customer using 13,500 kWh of gas and should be used as a guide only.

For more information [click here](#)

Discounts

+

Add discount

+

Add discount

Tariff rate plans

PROFILE CLASS COMPARISON

Profile class 00

Profile class 01

Profile class 02

← → ↺ ⓘ

Apps New Tab Clear Cache JIRA

Contract Management Customer Management

Apr 9, 2019 3:46 PM Michell Smith Sales Accountant

Add Customer Farouk Alhassan

Farouk Alhassan #22450912 farouk.alhassan@gmail.com

Suspended In Debt

BILLING ADDRESS: 9 NESWICK STREET, PLYMOUTH, PL1 5JJ

SUPPLY ADDRESS: Same as billing address

VIEW NEIGHBOURHOOD

Primary

Special Requirements

Meter Management

Electricity MPAN: 123456789 STATUS: Live

TARIFF: Standard Variable EAC: 2900 kWh

SSD: 24/04/2017

Electricity MPAN: 123456789 STATUS: Live

Electricity Contract

VIEW CONTRACT VIEW BILLING VIEW METER

Subscriptions

Devices

Customer Interaction

CONVERSATIONS LOGS EMAILS TEXTS ALERTS

JAVA FX IN THE BROWSER

← → ↺ ⌵

Apps New Tab Clear Cache JIRA

☰ ↶

Contract Management × Customer Management ×

🔍 Apr 9, 2019 3:47 PM Michell Smith Sales Accountant

☰

🔍 Add Customer Farouk Alhassan ×

↺ ×

Farouk Alhassan

#22450912

farouk.alhassan@gmail.com

Suspended In Debt

BILLING ADDRESS: 9 NESWICK STREET, PLYMOUTH, PL1 5JJ

SUPPLY ADDRESS: Same as billing address

VIEW NEIGHBOURHOOD

Primary +

Special Requirements

Add tag ... +

Meter Management

⚡ Electricity

MPAN: 123456789 STATUS: Live

TARIFF: Standard Variable EAC: 2900 kWh

SSD: 24/04/2017

⚡ Electricity

MPAN: 123456789 STATUS: Live

⚡ Electricity

INCOMPLETE

Last Month's Usage: 0.0 kWh

Last Month's Cost: £0.0

Last Actual Meter Reading: 0 (c)

Current Balance: £0.0 (Cr)

🔄 Subscriptions

Add subscription Add subscription Add subscription

📱 Devices

Add device Add device Add device

Customer Interaction

CONVERSATIONS LOGS EMAILS TEXTS ALERTS

F

JAVA FX IN THE BROWSER

KARAKUN

REQUIREMENTS

PRO ■ ■ ■


```
buildscript {
    repositories {
        jcenter()

        maven {
            url "http://sandec.bintray.com/repo"
        }
    }

    dependencies {
        classpath 'com.sandec.jpro:jpro-plugin-gradle:2018.1.14'
    }
}
```

```
apply plugin: 'com.sandec.jpro'
```

```
mainClassName = 'com.jpro.hellojpro.HelloJProFXML'
```

```
jpro {
    port = 8080
    JVMArgs << '-Xmx1024m'
}
```



```
<plugin>
  <groupId>com.sandec.jpro</groupId>
  <artifactId>jpro-maven-plugin</artifactId>
  <version>${jproVersion}</version>
  <configuration>
    <visible>>false</visible>
    <JVMArgs>
      <!-- <JVMArg>your-args</JVMArg> -->
    </JVMArgs>
    <mainClassName>com.jpro.hellojpro.HelloJProFXML</mainClassName>
    <openingPath>/</openingPath>
  </configuration>
</plugin>

<repositories>
  <repository>
    <id>jpro - sandec repository</id>
    <url>http://sandec.bintray.com/repo</url>
  </repository>
</repositories>

<dependencies>
  <dependency>
    <groupId>com.sandec.jpro</groupId>
    <artifactId>jpro-webapi</artifactId>
    <version>${jproVersion}</version>
    <scope>compile</scope>
  </dependency>
</dependencies>
```



DEMO . . .

IN THE END . . .

... IF YOU TAKE IT
INTO ACCOUNT ...

... IT WON'T DIE!!!

THANK YOU . . .

