Igor Khokhriakov

# Mobile Tango Software Develoment Kit (m*T*angoSDK) v1.0.1
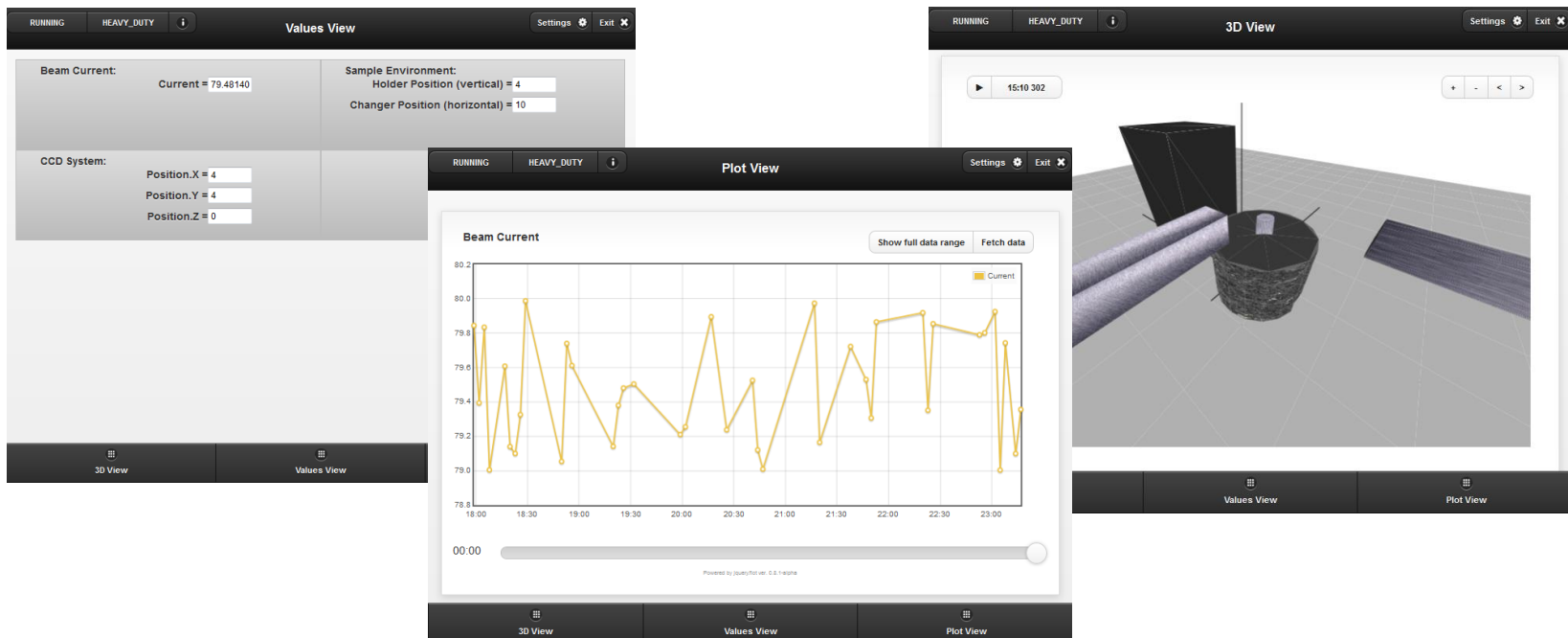
::::: **Helmholtz-Zentrum**
::::: **Geesthacht**
Centre for Materials and Coastal Research

# Idea:

- Monitor the ongoing experiment from a mobile device
- Review experiment when device is offline
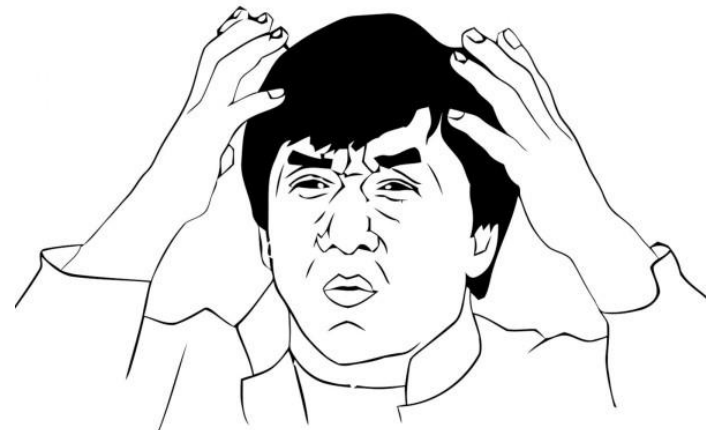- Configure easily for a variety of different instruments

# Goals:

Was presented in Grenoble and Barcelona in the 2013.

Distributed as a single archive:

Web-Frontend; JavaScriptMVC;
embeded PhoneGap project;
bunch of ant scripts

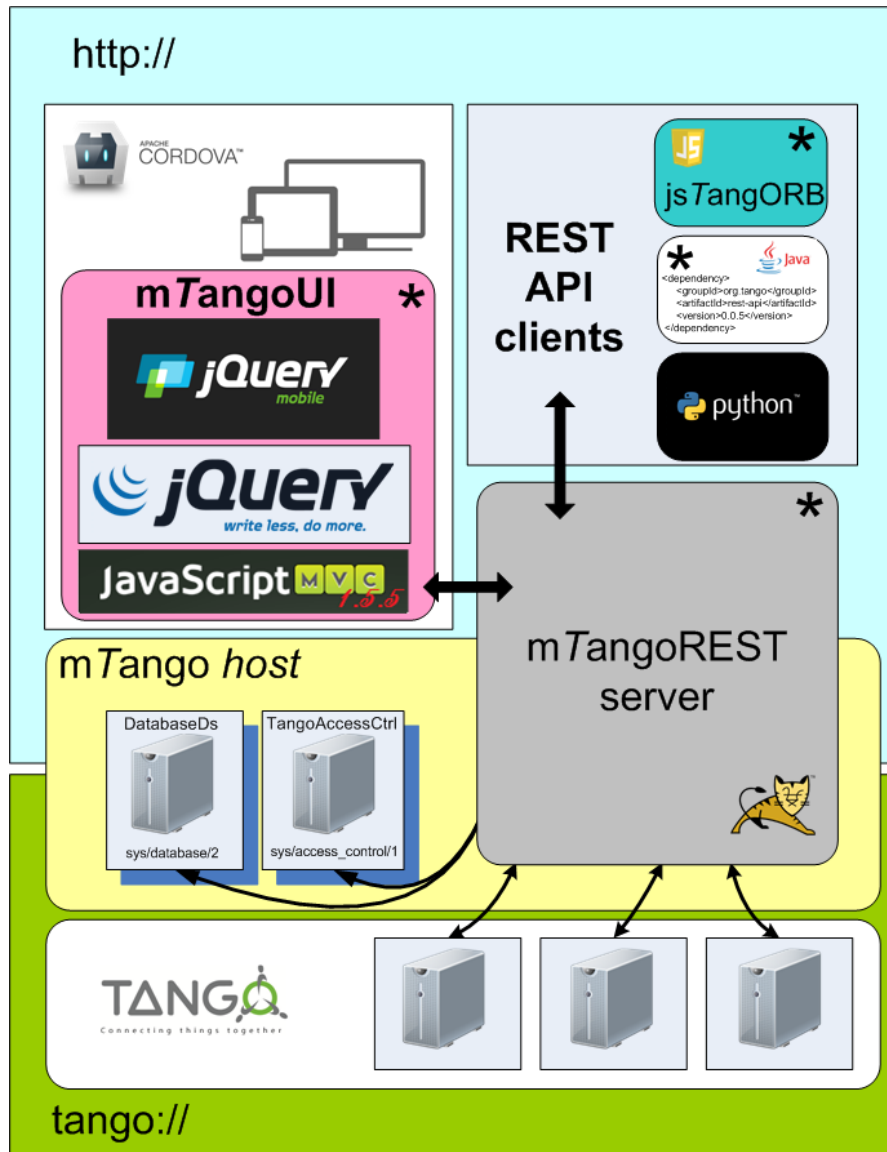Conclusion: a good starting point…
but not really user friendly

Totally redesigned, restructured and reorganized

Released in March, 2015

# mTangoSDK v1.0.1

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**Tools:**

**•mTangoREST.server**
a java web application that provides
REST API to tango servers.
Basically it is a bridge
from "http://" to "tango://"

**•mTangoREST-client for Java**
a maven artifact.
This artifact provides java classes
for mTango-REST java client
development

**•jsTangORB**
a javascript library for mTango-REST
javascript client development

**•mTangoUI**
a framework for rapid web/mobile
UI development

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**mTangoREST.server**:
•easy setup
•two steps authorization
•DatabaseDs and TangoAccessControl integration
•events support
•server side caches and optimizations
•images into response injection

**mTangoREST-client for Java**:
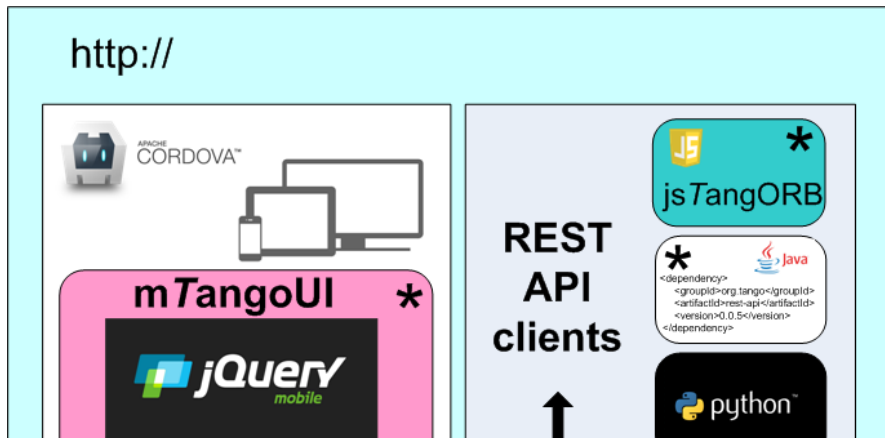•distributed via maven
•predefined type tokens

**jsTangoORB**:
•easy setup
•high level abstraction API to mTangoREST.server
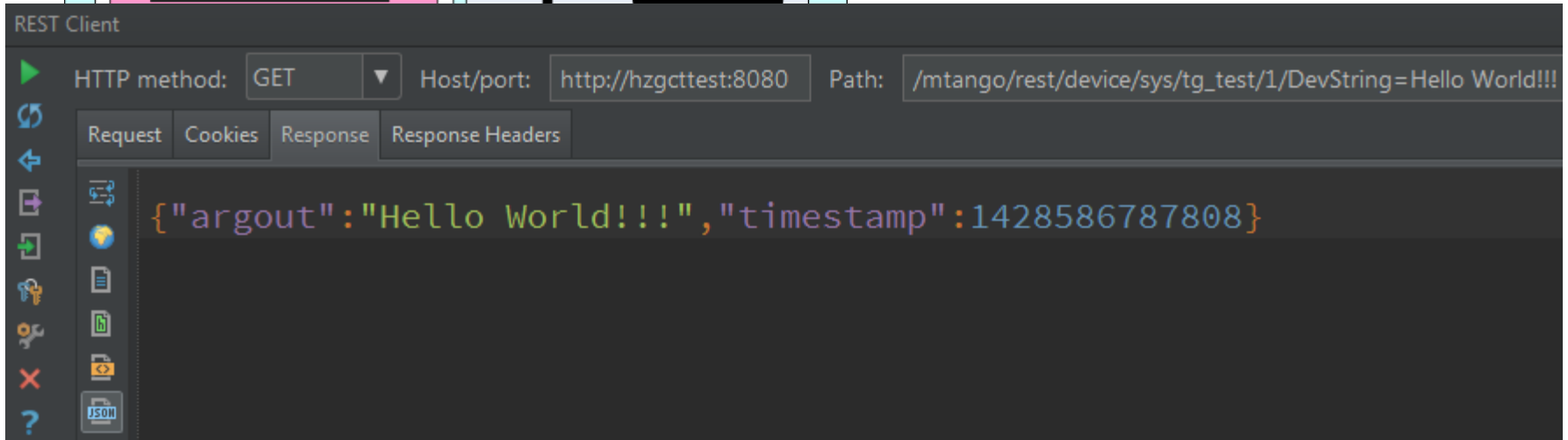•client side caches and optimizations

**mTangoUI**:
•easy integration with Apache Cordova
•predefined UI components
•reliable error handling
•client side optimizations

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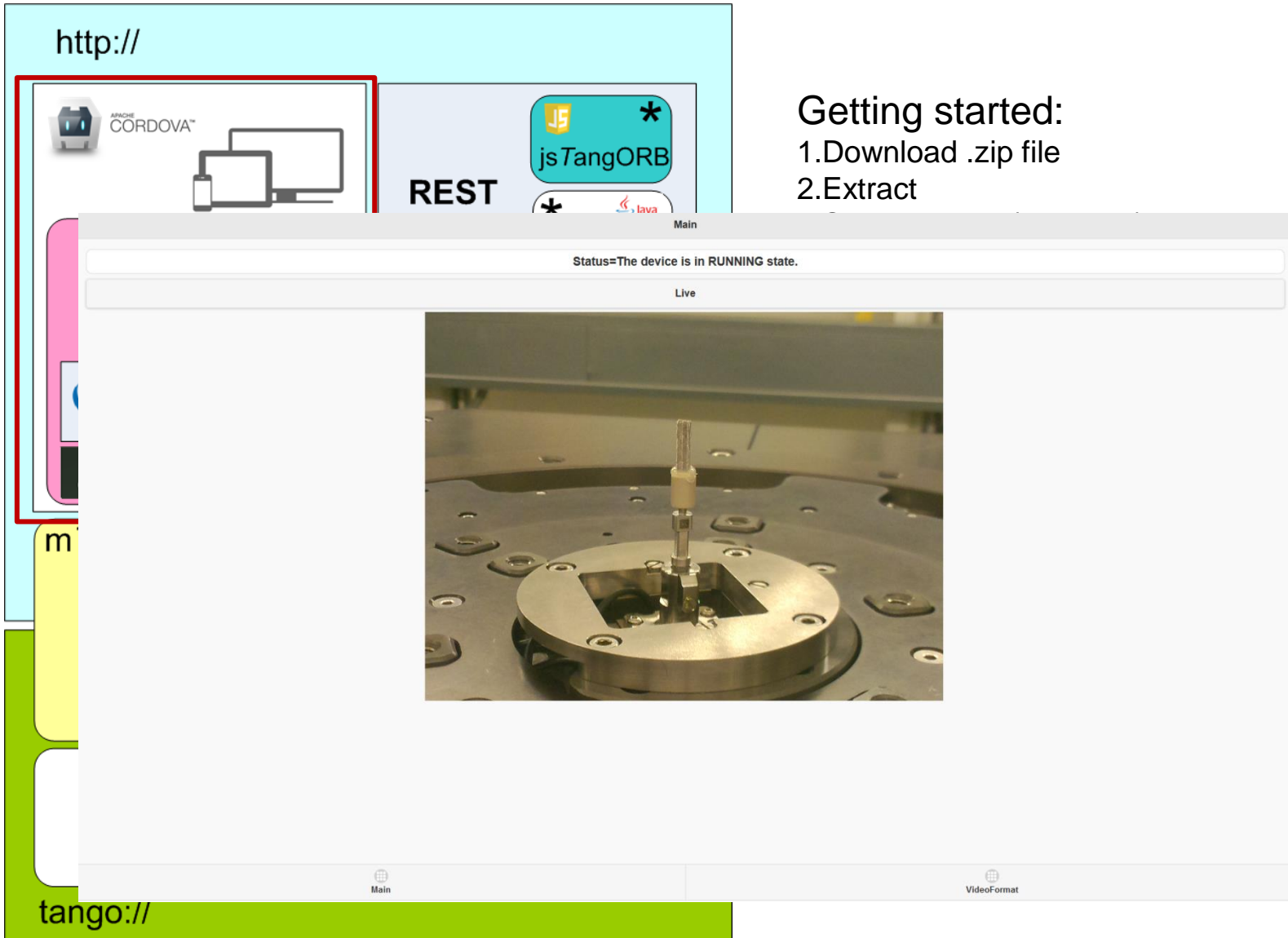Centre for Materials and Coastal Research



Getting started:
1. Download .zip archive
2. Extract .war file from the .zip into the servlet container's webapps folder
3. Define users and roles
4. Restart the servlet container

REST Client

HTTP method: GET ▼ Host/port: http://hzgcttest:8080 Path: /mtango/rest/device/sys/tg_test/1/DevString=Hello World!!!

Request | Cookies | Response | Response Headers

```
{"argout":"Hello World!!!","timestamp":1428586787808}
```

tango://

http://

APACHE
CORDOVA™

js*T*angORB

REST

Java

**Getting started:**
1. Download .zip file
2. Extract

Main

Status=The device is in RUNNING state.

Live



Main

VideoFormat

tango://

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m*T*angoUI is an extension to **JavaScriptMVC** which includes:

- jsTangORB engine
- m*T*angoUI engine
- mtango command line tools

jsTangORB is a javascript library that provides an API [aka **TangORB.jar**]

- communicates with the server via JsonP
- optimizes and caches requests to the server
- provides events support [based on Comet]

m*T*angoUI engine – next slides

mtango cli tools – a bunch of helpers, like create/remove apps; create/remove app's pages; create jsTango proxies

## fld_text_ro

```
<mtango:attr src="sys/tg_test/1/double_scalar"
            view="fld_text_ro"
            poll="3000">
</mtango:attr>
```

double_scalar=-174.59096466723585

## fld_text_rw

```
<mtango:attr src="sys/tg_test/1/double_scalar_w"
            view="fld_text_rw"
            read="">
</mtango:attr>
```

double_scalar_w=3.14

## fld_list_ro

```
<mtango:attr src="sys/tg_test/1/double_spectrum"
             view="fld_list_ro"
             read="">
</mtango:attr>
```

**double_spectrum_ro:**

| |
|---|
| 151 |
| 194 |
| 107 |
| 36 |
| 71 |
| ... |

## fld_list_rw

```
<mtango:attr src="sys/tg_test/1/double_spectrum_w"
             view="fld_list_rw"
             read="">
</mtango:attr>
```

| double_spectrum: | |
|---|---|
| 1.23 | |
| 3.14 | |
| 7.98 | |
| 5.64 | |
| 6.123 | |
| ... | |

# mTangoSDK v1.0.1. mTangoUI engine

Plots:

Custom field view:

# jsTangORB. Caching and optimizations
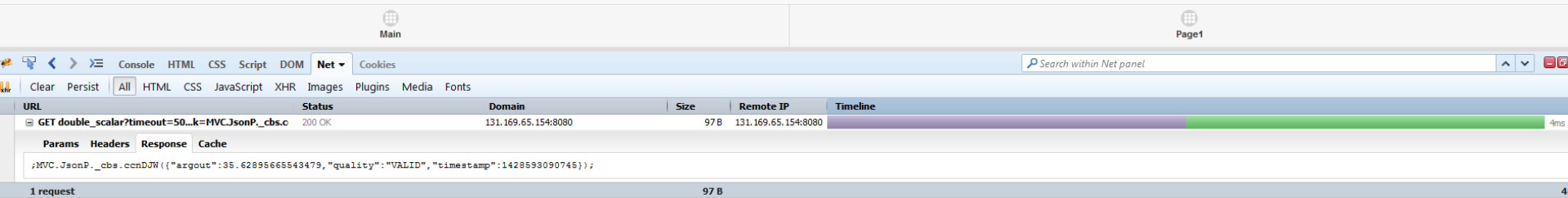
TEST

double_scalar=35.62895665543479

double_scalar=35.62895665543479

double_scalar=35.62895665543479

double_scalar=35.62895665543479

Main

Page1

Console  HTML  CSS  Script  DOM  Net ▾  Cookies

Clear  Persist  All  HTML  CSS  JavaScript  XHR  Images  Plugins  Media  Fonts

| URL | Status | Domain | Size | Remote IP | Timeline |
|---|---|---|---|---|---|
| ⊟ GET double_scalar?timeout=50...k=MVC.JsonP._cbs.o | 200 OK | 131.169.65.154:8080 | 97 B | 131.169.65.154:8080 | 4ms |

Params  Headers  **Response**  Cache

;MVC.JsonP._cbs.ccnDJW({"argout":35.62895665543479,"quality":"VALID","timestamp":1428593090745});

1 request                                                        97 B

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All the UI components are "clever" enough to suspend their activities

*   when they are on the hidden page
*   application pauses

To deploy onto a mobile device using Apache Cordova:

1. Setup cordova
2. Setup target platform SDK
3. Copy m*T*angoUI project into {CORDOVA}/www
4. `cordova run` [for debug]
5. Publish

# m*T*angoSDK v1.0.2

## What?

Issues (1–12 of 12)

| Title | T | P | Status | Votes | Assignee | Version |
|---|---|---|---|---|---|---|
| #45: Reimplement as cordova plugin `jmvc-applicati…` | ☑ | ↑ | NEW | | 👤 Ingvord | 1.0.2 |
| #84: Requests multiplexing/demultiplexing `jmvc-applicati…` | ☑ | ↑ | NEW | | 👤 Ingvord | 1.0.2 |
| #80: Add mtango\help js script `jmvc-applicati…` | ☑ | ↓ | NEW | | 👤 Ingvord | 1.0.2 |
| #79: Bind cordova_controller to device `jmvc-applicati…` | ☑ | ↑ | NEW | | 👤 Ingvord | 1.0.2 |
| #64: DeviceAttributeUI#write returns previous value after write `jmvc-applicati…` | ● | ↑ | NEW | | 👤 Ingvord | 1.0.2 |
| #62: Admin console for tango.war `web-frontend` | ☑ | ↑ | NEW | | 👤 Ingvord | 1.0.2 |
| #75: Unsubscribe from an event on the server side if not active for a while `web-frontend` | ☑ | ↑ | NEW | | 👤 Ingvord | 1.0.2 |
| #74: xsd for mtango namespace `jmvc-applicati…` | ☑ | ↓ | NEW | | 👤 Ingvord | 1.0.2 |
| #72: Polling buffer `jsTangORB` | ⊞ | ↓ | NEW | | 👤 Ingvord | 1.0.2 |
| #71: DeviceAttribute#poll retries policy `jsTangORB` | ☑ | ↑ | NEW | | 👤 Ingvord | 1.0.2 |

## When? – August/September 2015

# Thank you!

Questions?