



Glue for the Internet of Things_

Coupling the
IoT with MQTT

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www.codecentric.de
blog.codecentric.de
www.jensd.de
www.mqttfx.org

 @jerady

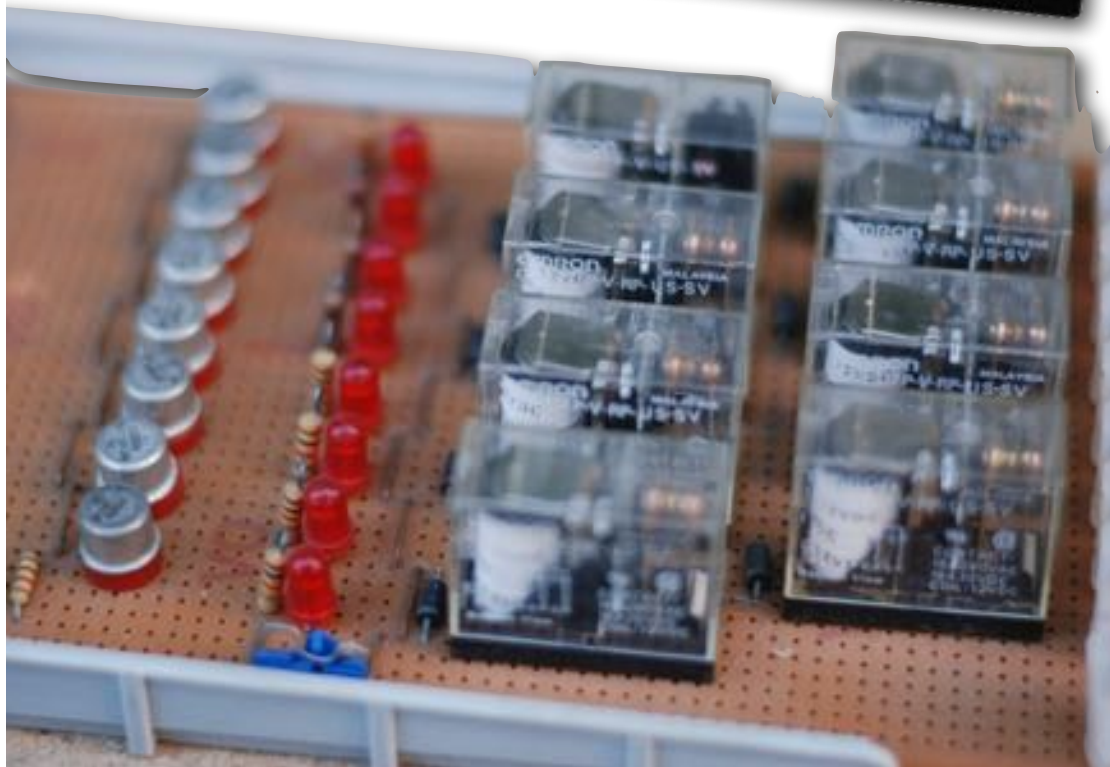


$$4 + 1 = 5$$

25 years ago_



```
COMMODORE BASIC V3.5 60671 BYTES FREE  
3-PLUS-1 ON KEY F1  
READY.  
■
```



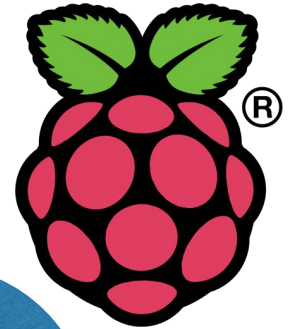
```
READY.  
POKE 56759,255
```

```
READY.  
POKE 56577,255
```

```
READY.  
■
```



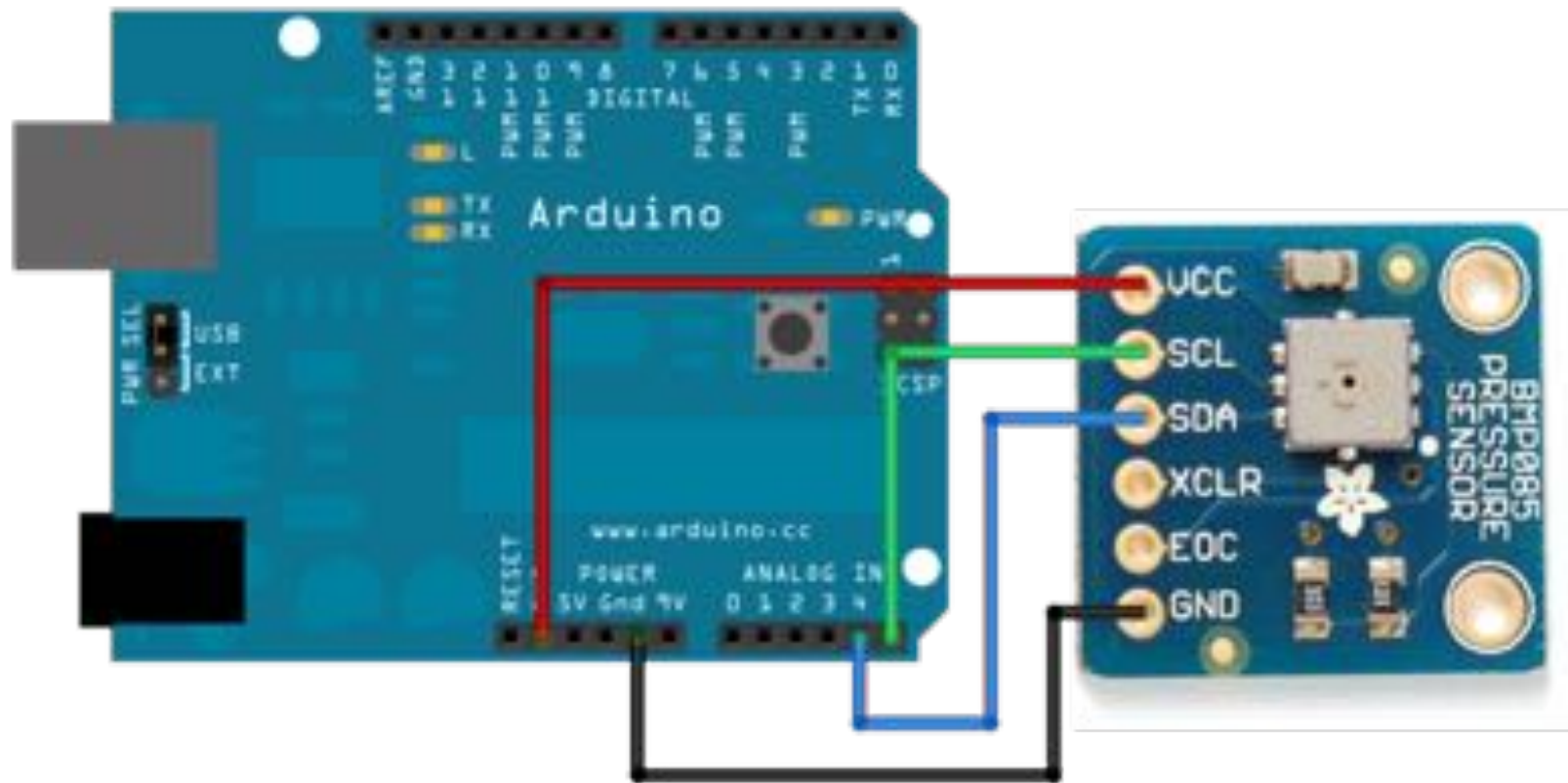

ESP8266



INTERNET *of* the THINGS

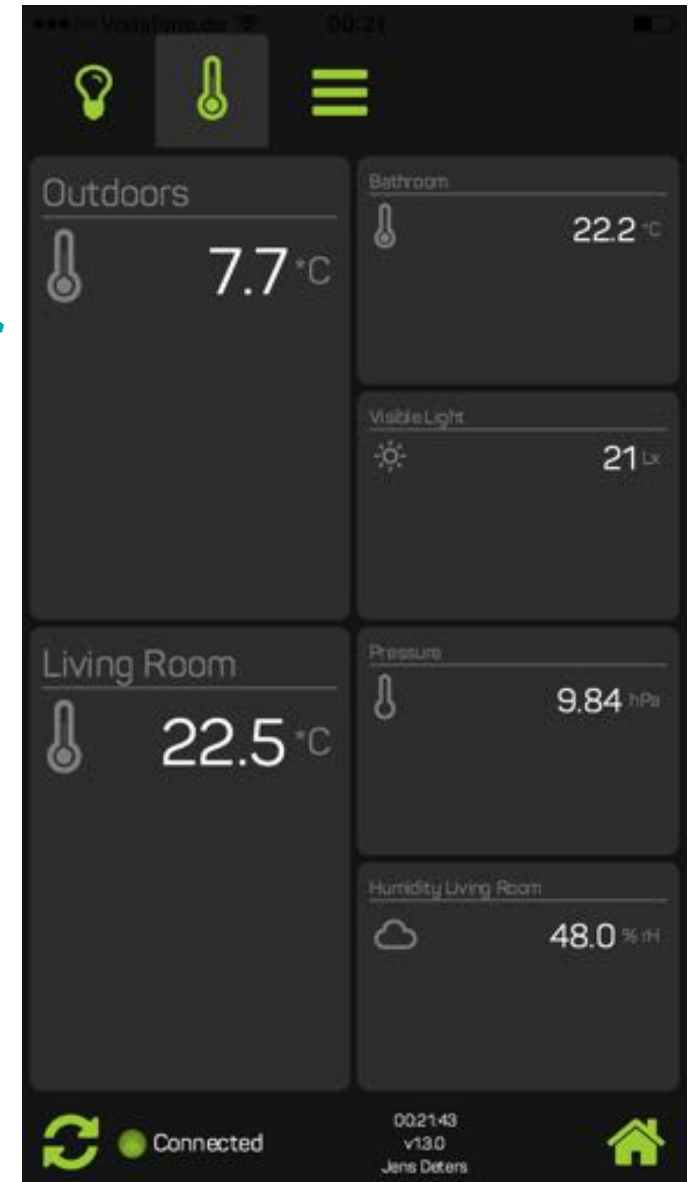


cubieboard
open arm box





7.7



MQTT

Advanced Message Queuing Protocol (AMQP)

Constrained Application Protocol (CoAP)

Extensible Messaging and Presence Protocol (XMPP)

IoT protocols

Message Queue Telemetry Transport (MQTT)

Data Distribution Service (DDS)

Hyper Text Transfer Protocol (HTTP)

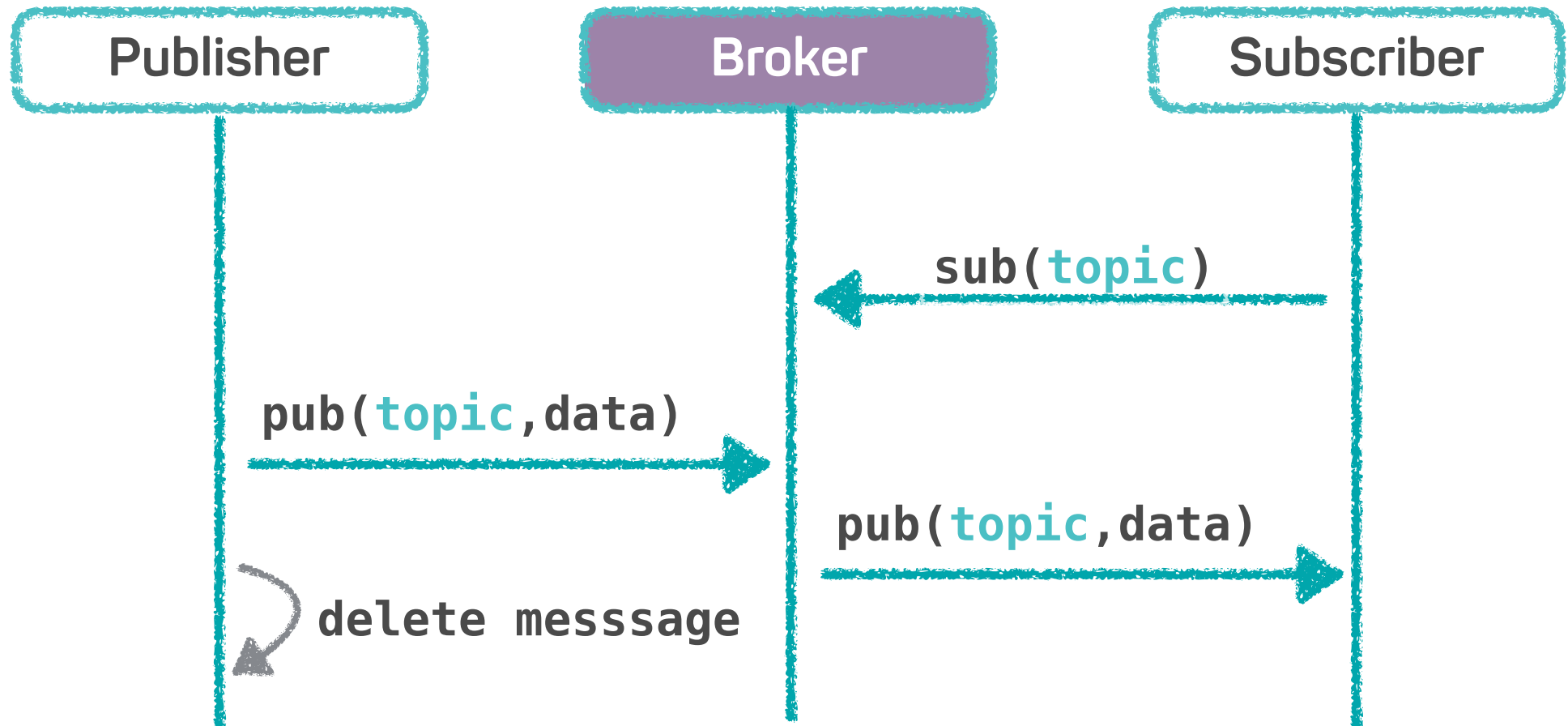
MQTT in a Nutshell

- Message Queue Telemetry Transport
- Lightweight (≥ 2 byte overhead)
- TCP based
- Asynchronous
- Client/Broker - Publish/Subscribe
- QoS, Last Will & Testament messages
- Security (Username/Password - SSL/TLS)
- Topic Wildcard Patterns
- Broker bridging support
- Desired for Device2Server



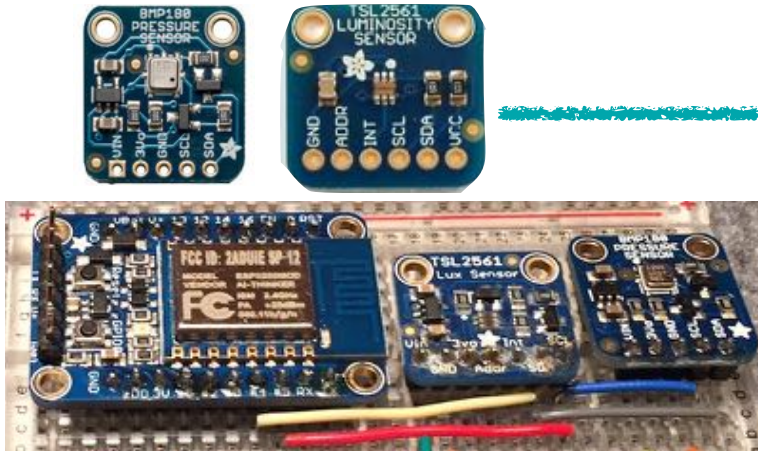


Publish / Subscribe

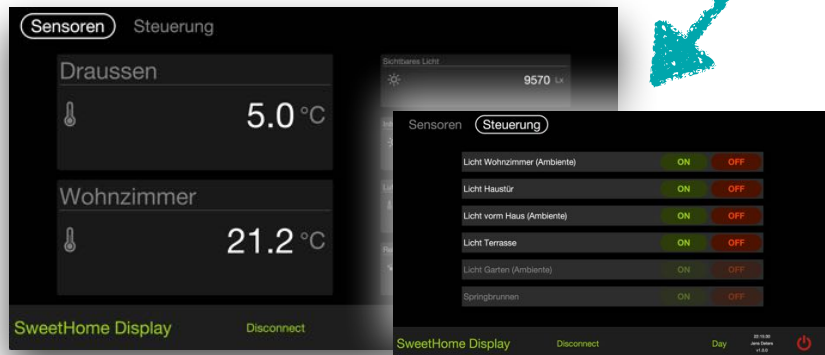


MQTT IoT Network

Sensors



Clients



Actors



Remote-Switch

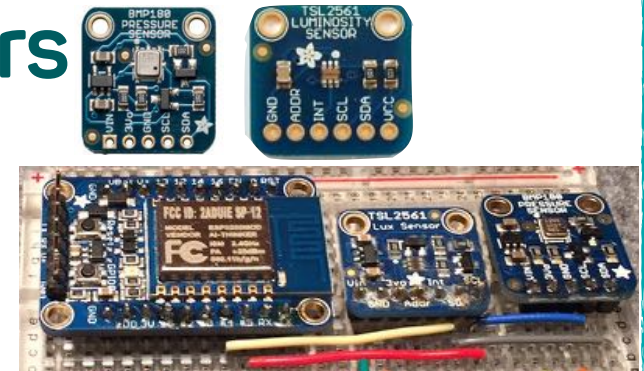


Actors



<code>../actor/outdoor/backyard/terrace/lights</code>
<code>../actor/outdoor/backyard/greenarea/lights</code>
<code>../actor/outdoor/backyard/fountain</code>
<code>../actor/outdoor/front/mainentrance/lights</code>
<code>../actor/outdoor/front/walk/lights</code>
<code>../actor/indoor/livingroom/gecko/lights</code>
<code>../actor/indoor/livingroom/wall/lights</code>
<code>../actor/indoor/livingroom/tv/lights</code>
<code>../actor/jsoncommand</code>

Sensors



<code>../sensor/indoor/livingroom/temperature</code>
<code>../sensor/indoor/livingroom/humidity</code>
<code>../sensor/indoor/bathroom/temperature</code>
<code>../sensor/indoor/bathroom/humidity</code>
<code>../sensor/outdoor/backyard/temperature</code>
<code>../sensor/outdoor/backyard/pressure</code>
<code>../sensor/outdoor/backyard/altitude</code>
<code>../sensor/outdoor/backyard/lux</code>
<code>../sensor/outdoor/backyard/lux-ir</code>

sweethome

actor

sensor

indoor

outdoor

livingroom

front

backyard

gecko

wall

tv

main entrance

walk

green area

terrace

light

light

light

light

light

fountain

light

fountain

indoor

outdoor

bathroom

livingroom

backyard

temperature

humidity

temperature

humidity

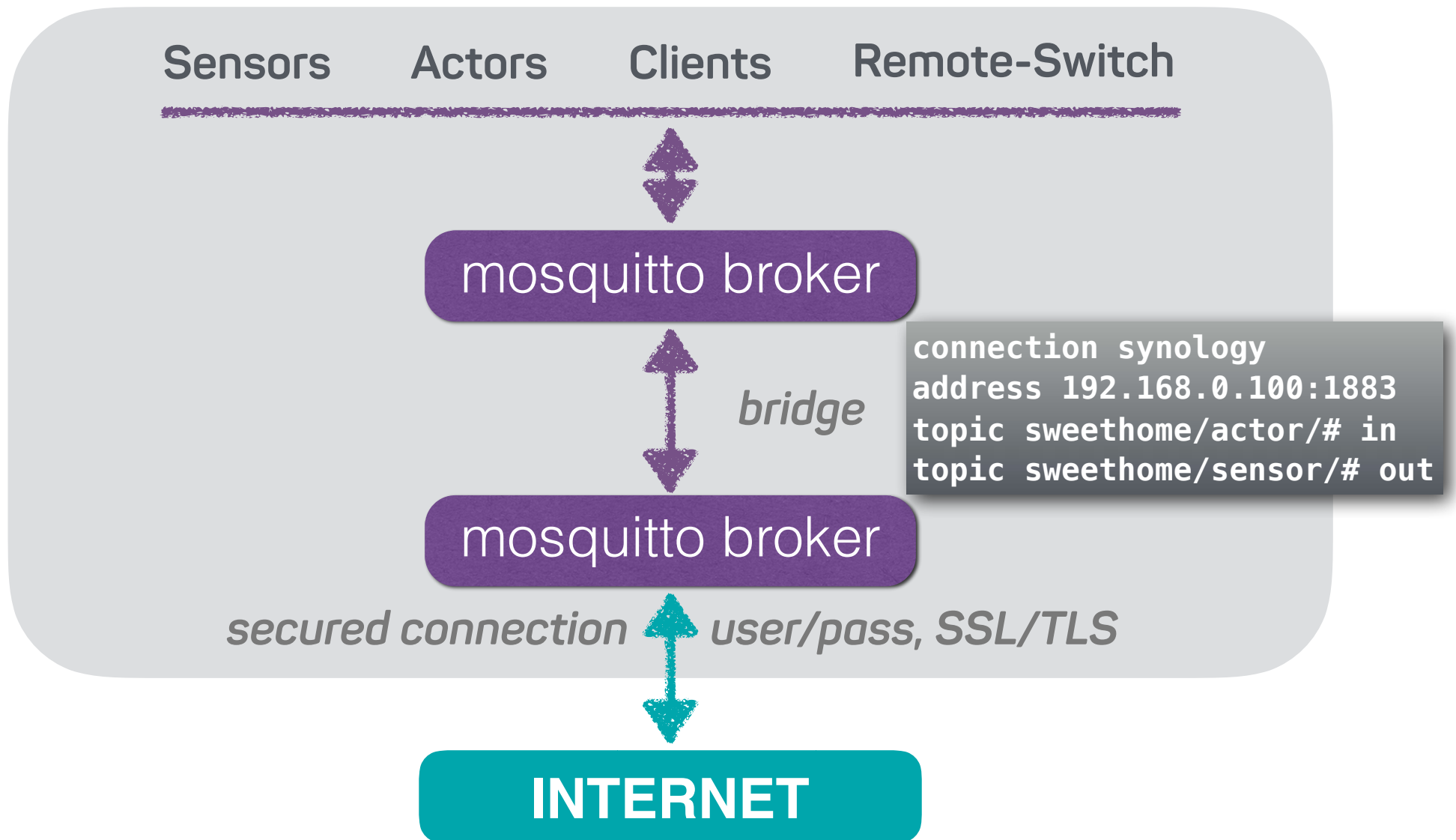
temperature

altitude

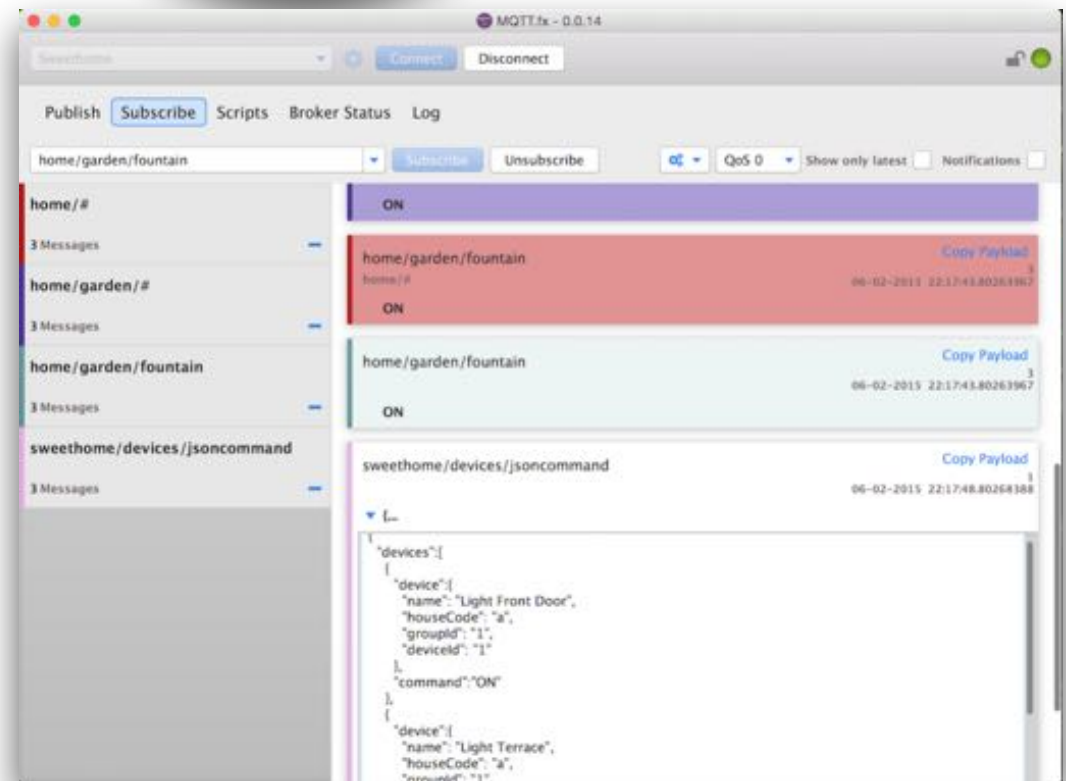
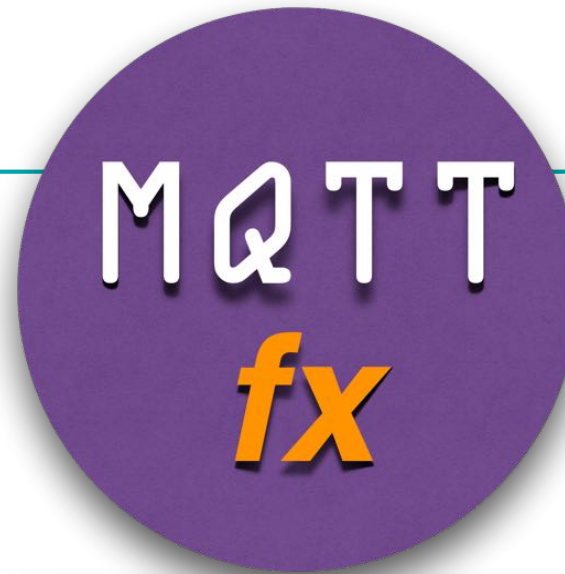
pressure

lux

lux-ir

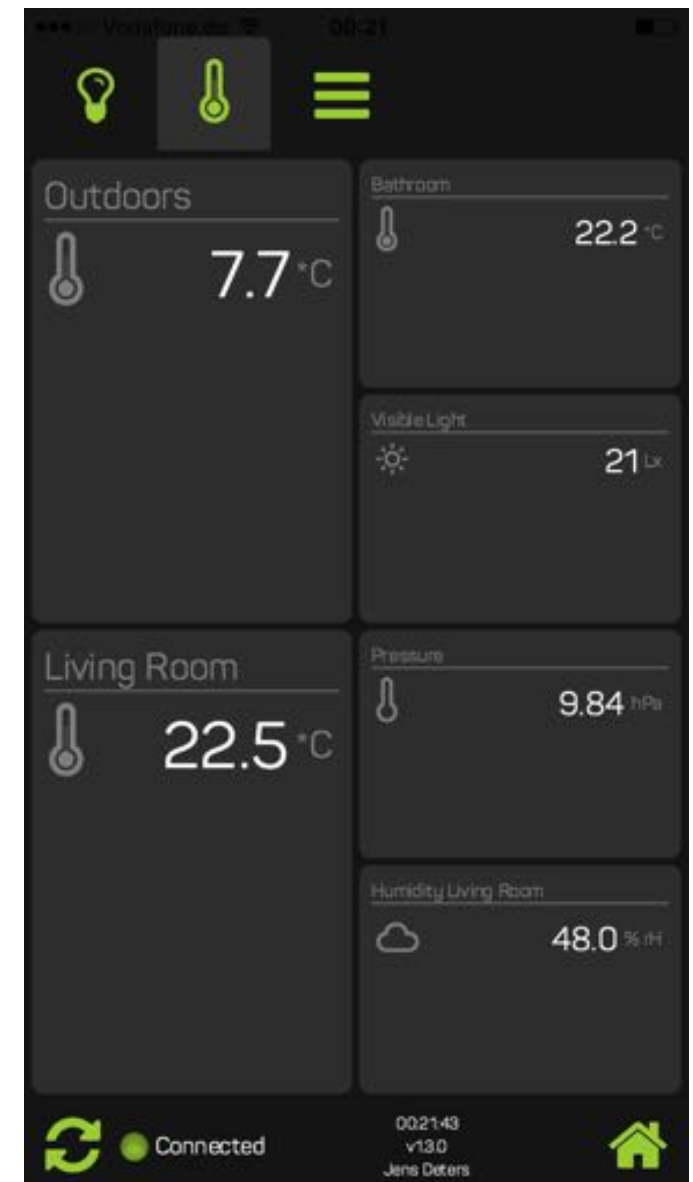
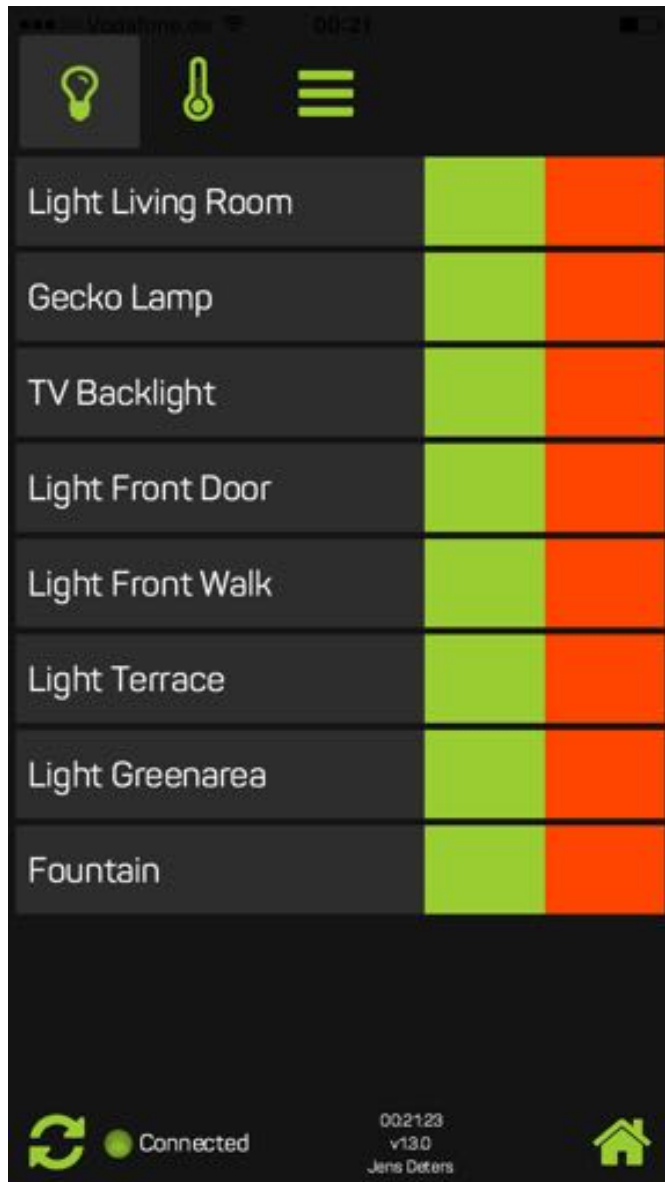


- Publish / Subscribe
- Connection Profiles
- Ad-hoc Connections
- SSL/TLS
- Scripting Engine
- \$SYS-Topics / Broker Status
- Proxy-Support
- History
- Messages Clipboard
- Logging
- Bundled Installers
- Instant Updates
- Free! (Apache 2.0 license)
- Bundled Installers for all



JavaFX Client



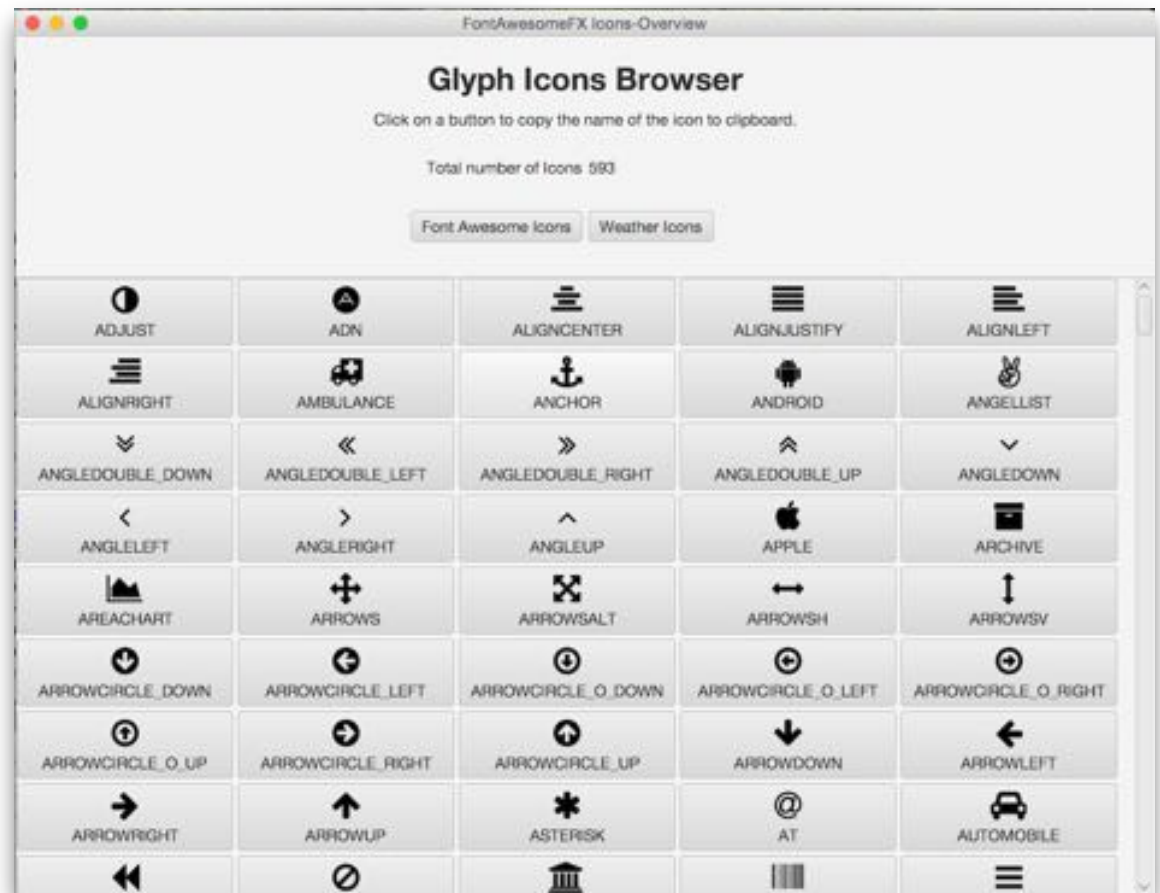


JavaFX Frameworks

FontAwesomeFX

FontAwesome v4.3.0

WeatherIcons v1.3



JavaFX Frameworks

WagashiFX

Licht Wohnzimmer

ON

OFF

```
DeviceSwitch deviceSwitch1 = new DeviceSwitch();
deviceSwitch1.setTitle("Licht Wohnzimmer");
deviceSwitch1.setOnSwitchOn(e -> {
    System.out.println("ON");
});
deviceSwitch1.setOnSwitchOff(e -> {
    System.out.println("OFF");
});
```

Temperature Outdoor



37.4 °C

```
ValueView valueView = new ValueView();
valueView.setGlyphName(WeatherIcon.DAY_FOG.name());
valueView.setValue("37.4");
valueView.setUnit("\u2103");
valueView.setFontSize("2em");
valueView.setTitle("Temperature Outdoor");
```

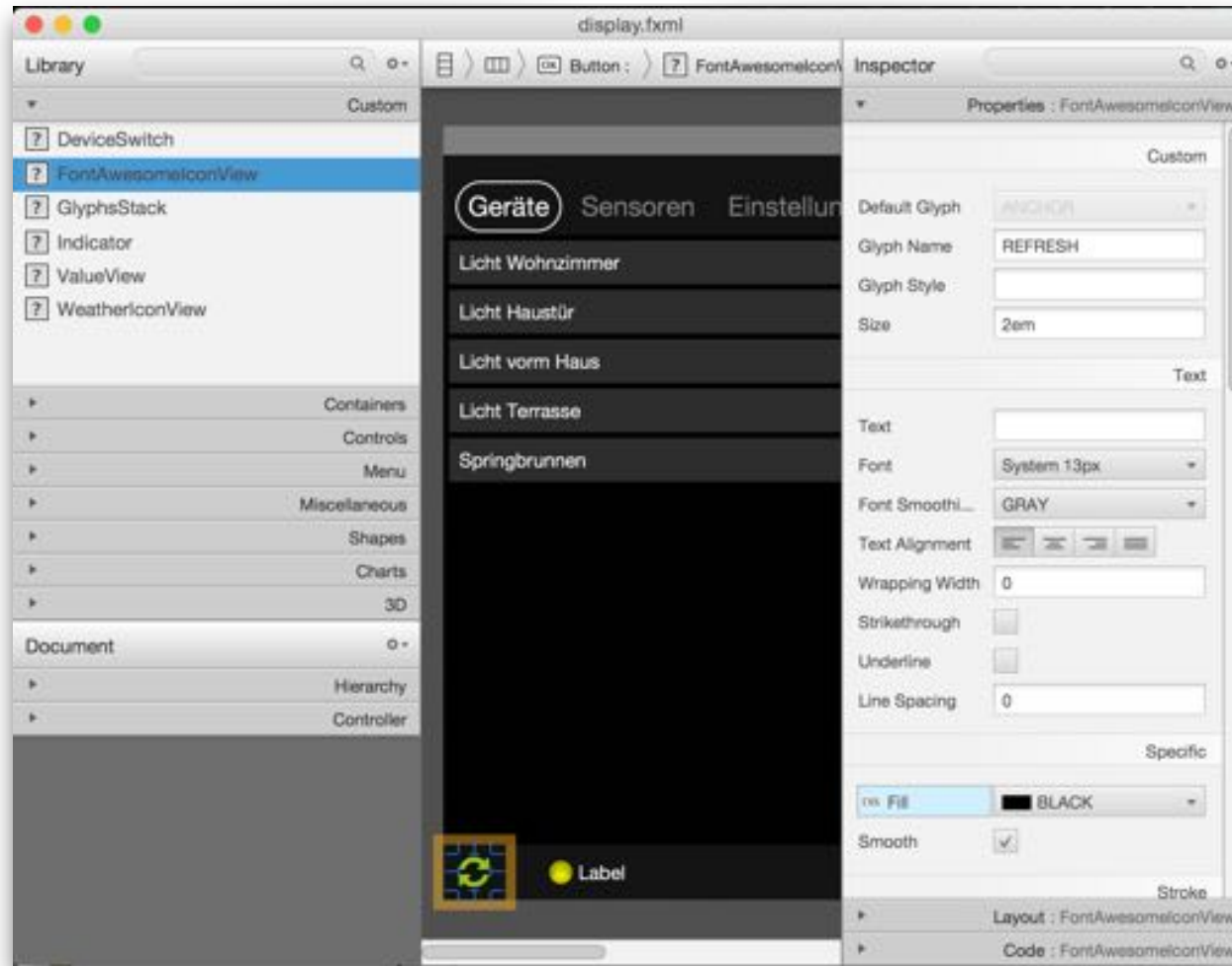
ValueView



DeviceSwitch



FontAwesomeIcomView



MQTT.fx Demo

Get the code here

<https://bitbucket.org/Jerady>

Links

<http://www.mqttfx.org>

<http://intertechno.at>

<http://www.gluonhq.com>

<http://www.pilight.org/>

www.jensd.de

