M2M - 2016 - RDSMining

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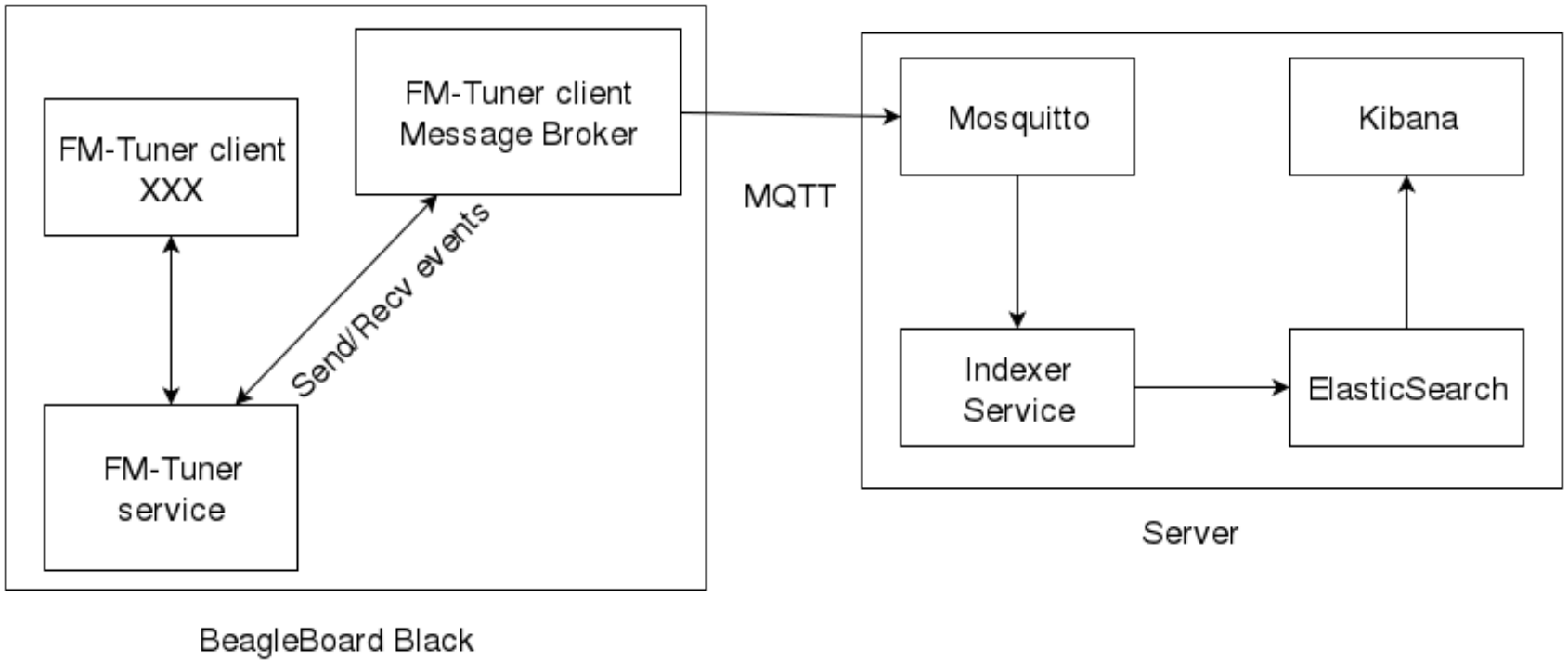
April 12, 2016

RDS protocol

- Radio Data System: A communication protocol.
- Transmit data blocks. (148.4375 bytes per second)
- Transmit data like current music of a radio station.


FM-Tuner client
XXX
FM-Tuner client
Message Broker
Send/Recv events
FM-Tuner
service
BeagleBoard Black
MQTT
Mosquitto
Kibana
Indexer
Service
ElasticSearch
Server

FM-Tuner Service

- A high level si4703 service (C gnu99 program).
- Working on a single thread (RDS parser + server).
- Non-blocking I/O.
- Working with systemd.
- Send changes/notifications to clients.

Messages

- A specific protocol working in TCP:

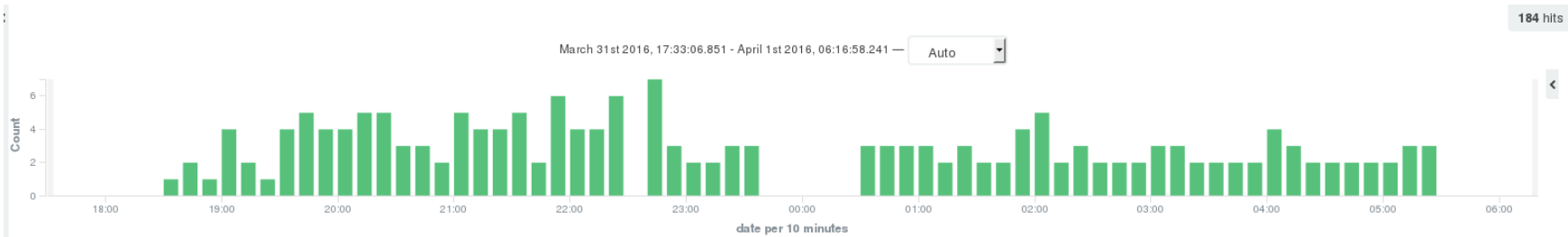
```
LENGTH TYPE_1 VALUE_1 [TYPE_N VALUE_N...]
```

FM-Tuner Message Broker

- A simple broker. (nodeJS program, ES7)
- Set the channel/volume. (Send message to service)
- Print service notifications.
- Send by MQTT the radio name.

MAPPINGS FOR RADIOS

```
{
  "radios": {
    "properties": {
      "name": {
        "type": "string"
      },
      "data_raw": {
        "index": "not_analyzed",
        "type": "string"
      },
      "data": {
        "type": "string"
      },
      "date": {
        "format": "strict_date_optional_time||epoch_millis",
        "type": "date"
      }
    }
  }
}
```



Time	_source
April 1st 2016, 05:29:22.000	data: RIRE -> CHEVALLIER LASPALES name: radio_test date: April 1st 2016, 05:29:22.000 data_raw: RIRE -> CHEVALLIER LASPALES _id: 317 _type: radios _index: radios _score:
April 1st 2016, 05:26:54.000	data_raw: RIRE -> BIRDY date: April 1st 2016, 05:26:54.000 data: RIRE -> BIRDY name: radio_test _id: 316 _type: radios _index: radios _score:
April 1st 2016, 05:22:06.000	data: RIRE -> COLUCHE name: radio_test data_raw: RIRE -> COLUCHE date: April 1st 2016, 05:22:06.000 _id: 315 _type: radios _index: radios _score:
April 1st 2016, 05:17:57.000	name: radio_test data: RIRE -> ALOE BLACC data_raw: RIRE -> ALOE BLACC date: April 1st 2016, 05:17:57.000 _id: 314 _type: radios _index: radios _score:
April 1st 2016, 05:13:03.000	data: RIRE -> BUN HAY MEAN name: radio_test data_raw: RIRE -> BUN HAY MEAN date: April 1st 2016, 05:13:03.000 _id: 313 _type: radios _index: radios _score:
April 1st 2016, 05:10:20.000	date: April 1st 2016, 05:10:20.000 data_raw: RIRE -> JAMES BROWN name: radio_test data: RIRE -> JAMES BROWN _id: 312 _type: radios _index: radios _score:
April 1st 2016, 05:05:26.000	name: radio_test data: RIRE -> GAD ELMALEH data_raw: RIRE -> GAD ELMALEH date: April 1st 2016, 05:05:26.000 _id: 311 _type: radios _index: radios _score:
April 1st 2016, 05:00:38.000	data_raw: RIRE -> PATRICK TIMSIT date: April 1st 2016, 05:00:38.000 data: RIRE -> PATRICK TIMSIT name: radio_test _id: 310 _type: radios _index: radios _score: