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Developer Day
System Interfaces

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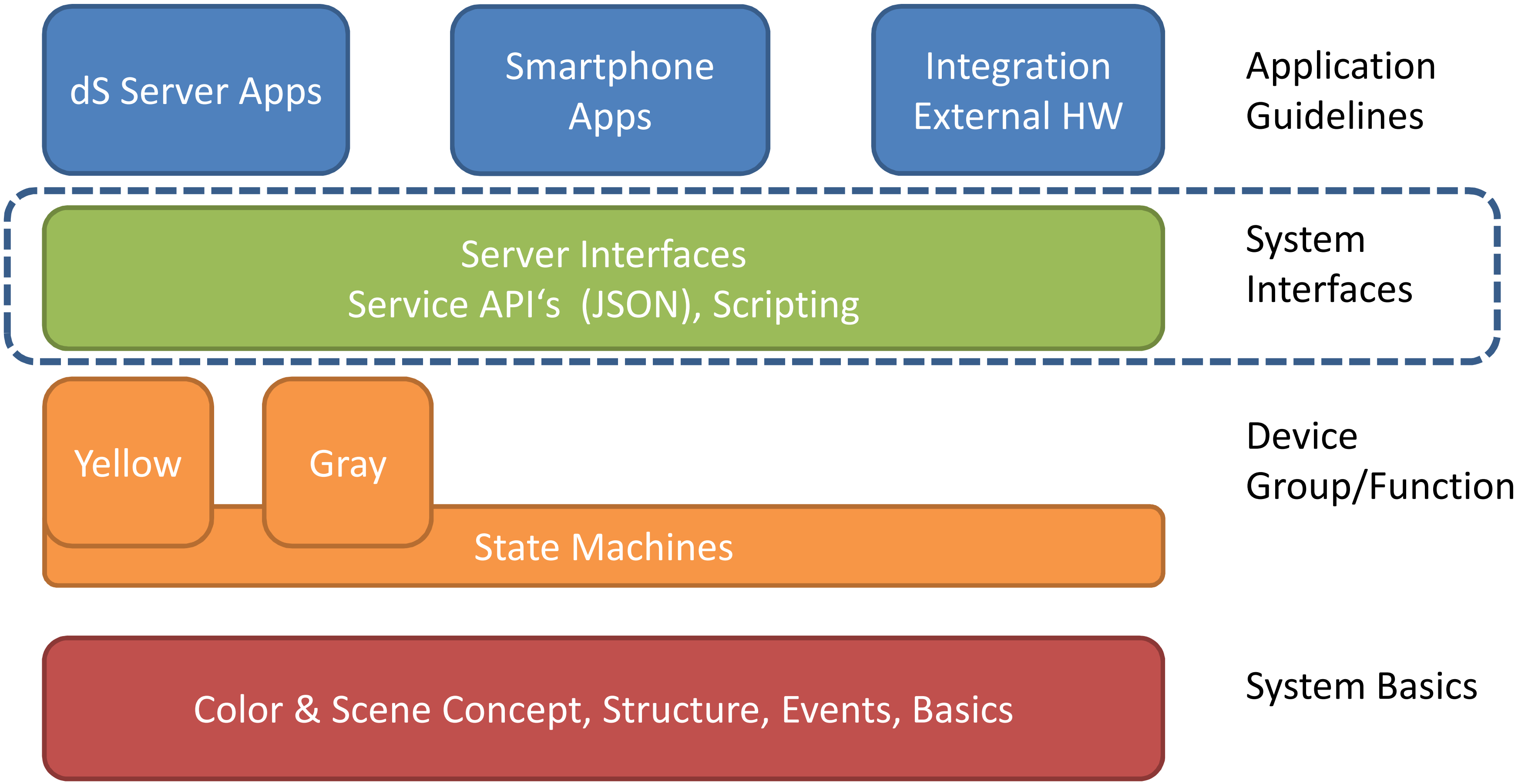
Sept 20th, 2012

System Documentation



dS Server Apps

Smartphone Apps

Integration External HW

Application Guidelines

Server Interfaces
Service API‘s (JSON), Scripting

System Interfaces

Yellow

Gray

State Machines

Device Group/Function

Color & Scene Concept, Structure, Events, Basics

System Basics

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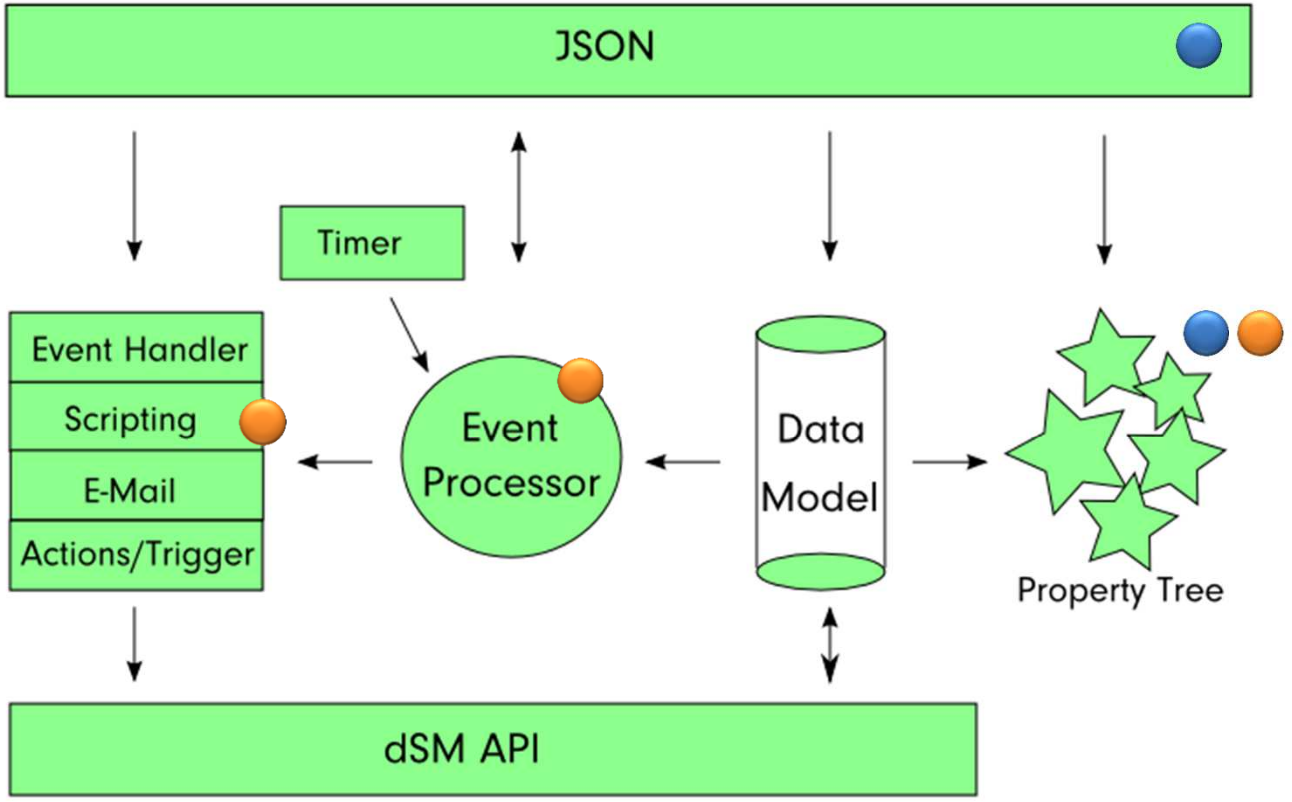
Content

- System Interfaces
- Server App Characteristics
- Smartphone App Characteristics
- Available System Functionality
- Demo

Interfaces - Accessing the dSS



● Smartphone Apps / Web

● Server Apps

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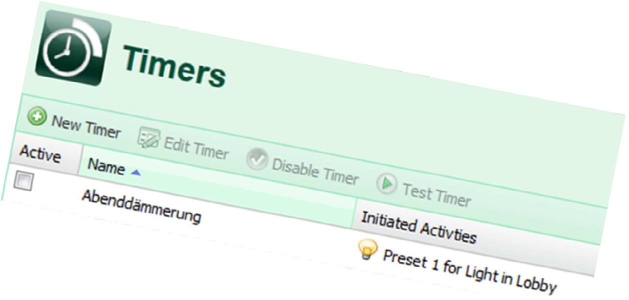
Server App Characteristics

Server Apps…

- are running locally and continuously on the dSS webserver
- have a html-based user interface stored locally on the server
- UI uses the webserver's authentication (username/password)
- can subscribe to system events and execute commands
- may read and write data from and to the property tree
- may use system functionalities like calling URLs and sending emails
- can be installed from the digitalSTROM-App-platform

Server Apps are designed to:

- Extend the digitalSTROM base functionality
- Forward local information (e.g. metering data) to cloud services



Active	Name	Initiated Activties
□	Abenddämmerung	Preset 1 for Light in Lobby

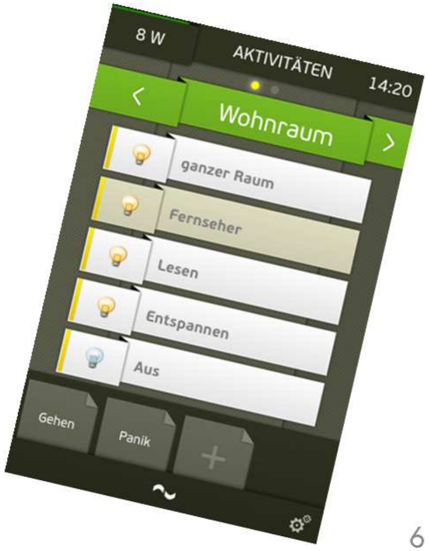
Smartphone Apps Characteristics

Smartphone Apps…

- are using the JSON interface to access the dSS
- use the personal token authentication
- can execute any commands available through JSON interface
- may read data from the property tree

Smartphone Apps are designed to:

- provide a remote user interface
  - with personalized configuration and behavior
- combine smartphone and digitalSTROM functions



Available System Functionality

Apps benefit from a broad set of functionalities provided by the dSS.

These include:

- Metering Data (power circuit and device level)
- Device Information such as configuration, EAN code, etc.
- Geo location data
- System events which can be used as a trigger (server apps only)
- Interfacing with web / cloud services
- Posting Information by E-Mail
- Logging capabilities

Metering

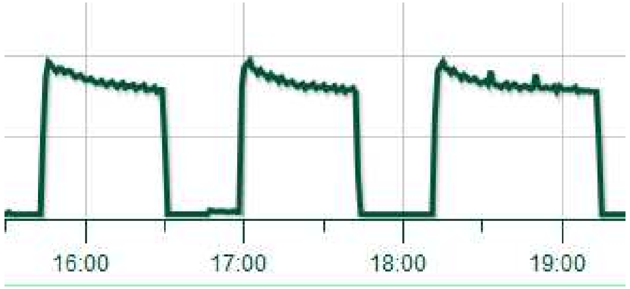
Measuring power consumption on two layers will provide full transparency to the user and flexibility for Apps:

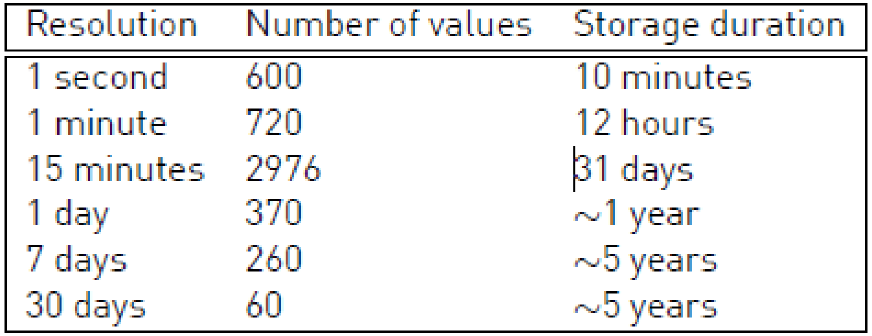
1. digitalSTROM Meter
   - Real time power consumption
   - Metering per power circuit
   - Access consumption history

2. digitalSTROM Devices
   - Get current consumption upon request
   - React to consumption events

Metering – dSM Level

- Analyze and display power-consumption and energy data in real time or by using history data.

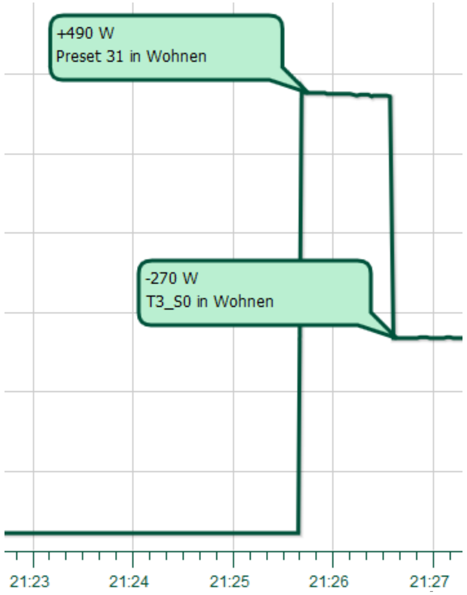




Resolution	Number of values	Storage duration
1 second	600	10 minutes
1 minute	720	12 hours
15 minutes	2976	31 days
1 day	370	~1 year
7 days	260	~5 years
30 days	60	~5 years

- Provide an even smarter analysis by combining both system events and power consumption.

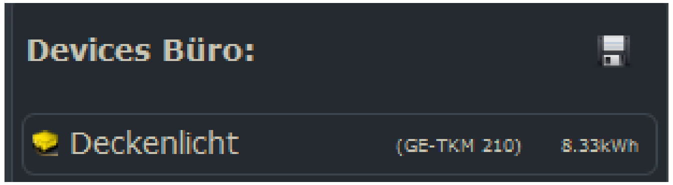
- Access metering data through property tree, JSON interface or scripting functions.



Metering – Device Level

- The current power consumption or energy counter* can be read from each device with a limited frequency.

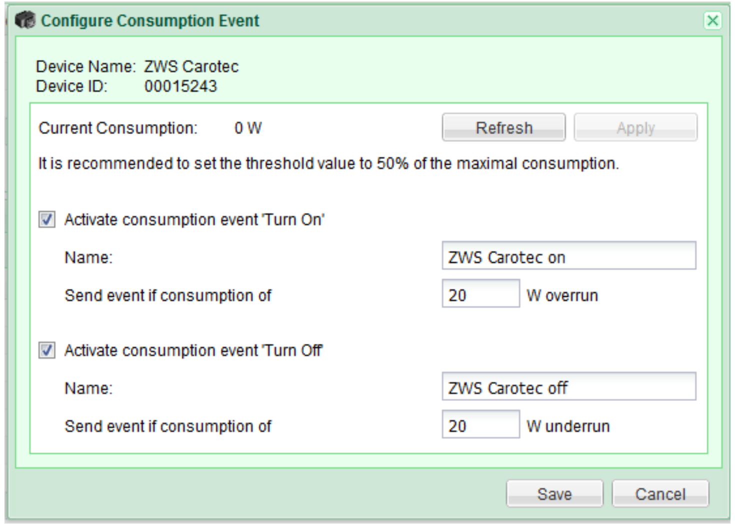
* Measured since last power cycle



Devices Büro:

Deckenlicht (GE-TKM 210) 8.33kWh

- Consumption events enable apps to executing actions or monitoring devices.
  - Two separate events will be raised when over- or under-running the threshold.
  - Available on SW-KL/ZWS



Configure Consumption Event

Device Name: ZWS Carotec
Device ID: 00015243

Current Consumption: 0 W

It is recommended to set the threshold value to 50% of the maximal consumption.

☑ Activate consumption event 'Turn On'

Name: ZWS Carotec on

Send event if consumption of 20 W overrun

☑ Activate consumption event 'Turn Off'

Name: ZWS Carotec off

Send event if consumption of 20 W underrun

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Interfacing with Web/Cloud Services

- Apps can communicate with cloud services or web-devices by calling URLs
- Examples:
  - Trigger a webcam to take and post a picture
  - Enable / disable WiFi on Casacom hotspots
  - Upload data to cloud services

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Posting Information by E-Mail

- Outgoing email account is configured within dSS system settings
- Apps can easily send emails by using the *Sendmail Handler* and providing the recipient, subject and mail body only.
- Examples:
  - Confirmation messages when enabling or disabling features like presence simulation
  - Remote monitoring of devices by tracking on/off states
  - Forward emails to SMS services for notifying emergencies

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Flexibility through App-Buttons

- App-Buttons provide full flexibility without any predefined behavior.
- Customized actions can be configured for 1x – 4x clicks and the long-click
- Actions can be defined either in the Event-Responder or in your own app
- Examples:
    - Operate all shades from one central app-button
    - Call any preset in any room
    - Send an email message
    - Trigger another device by calling a URL

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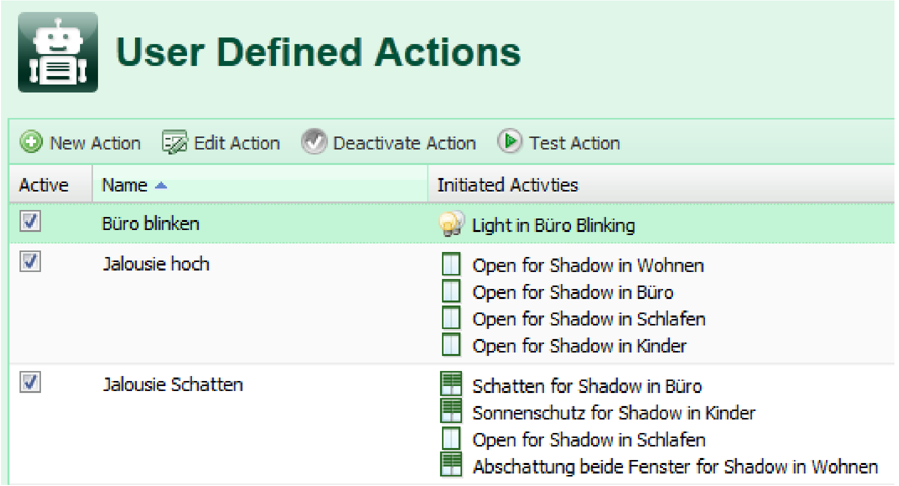
Automate with User Defined Actions

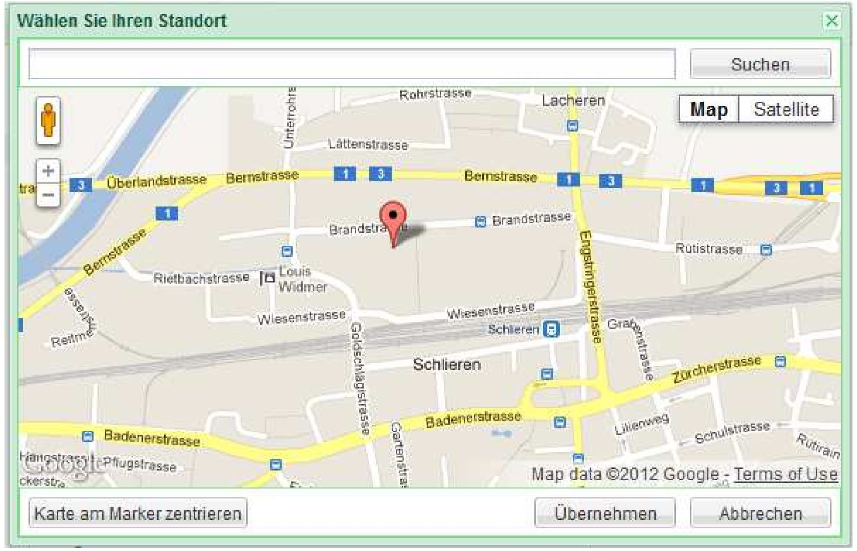
- User Defined Actions can be configured to execute repeated and commonly used activities
- They can be called from other apps, smartphones or app-buttons
- UDA's are an easy way to automate your home, e.g. to:
  - Switch on all the radio, coffee machine and light as well as open the shades when having breakfast
  - Switch off all the lights on the first floor
  - Open all shades



Active	Name	Initiated Activties
☑	Büro blinken	Light in Büro Blinking
☑	Jalousie hoch	Open for Shadow in Wohnen Open for Shadow in Büro Open for Shadow in Schlafen Open for Shadow in Kinder
☑	Jalousie Schatten	Schatten for Shadow in Büro Sonnenschutz for Shadow in Kinder Open for Shadow in Schlafen Abschattung beide Fenster for Shadow in Wohnen

Using Geo Location

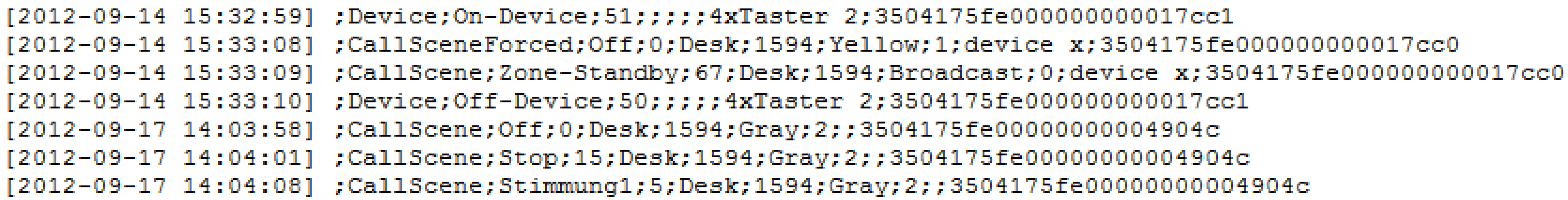
- The geographical location is known to the dSS
- Astronomical data like sunrise, sunset, dawn etc. are available from the property tree */config/geodata* and will be updated automatically
- Using this data, location based services like weather apps can be implemented



Learning from the Logfiles...

Logfiles are a great tool not only for debugging purpose, but to learn about the system behavior.

- all logfiles are located in */var/logs/* and its subfolders
- dSS-process logfiles are placed in */var/log/dss*
- Server apps can store their logfile in */var/logs/dss/js*
- System events are logged in */var/logs/dss/js/system-event.log*
  - Includes events like SceneCalls, ButtonClicks, Sensor Events etc.
  - Data allows detailed analysis of all (user-) activities within the system



```
[2012-09-14 15:32:59] ;Device;On-Device;51;;;;;4xTaster 2;3504175fe000000000017cc1
[2012-09-14 15:33:08] ;CallSceneForced;Off;0;Desk;1594;Yellow;1;device x;3504175fe000000000017cc0
[2012-09-14 15:33:09] ;CallScene;Zone-Standby;67;Desk;1594;Broadcast;0;device x;3504175fe000000000017cc0
[2012-09-14 15:33:10] ;Device;Off-Device;50;;;;;4xTaster 2;3504175fe000000000017cc1
[2012-09-17 14:03:58] ;CallScene;Off;0;Desk;1594;Gray;2;;3504175fe00000000004904c
[2012-09-17 14:04:01] ;CallScene;Stop;15;Desk;1594;Gray;2;;3504175fe00000000004904c
[2012-09-17 14:04:08] ;CallScene;Stimmung1;5;Desk;1594;Gray;2;;3504175fe00000000004904c
```

Short Demo...