Heterogenous and Distributed Services for the Future Computing Continuum

CPS-D1: Simple Instruction Manual – The Room

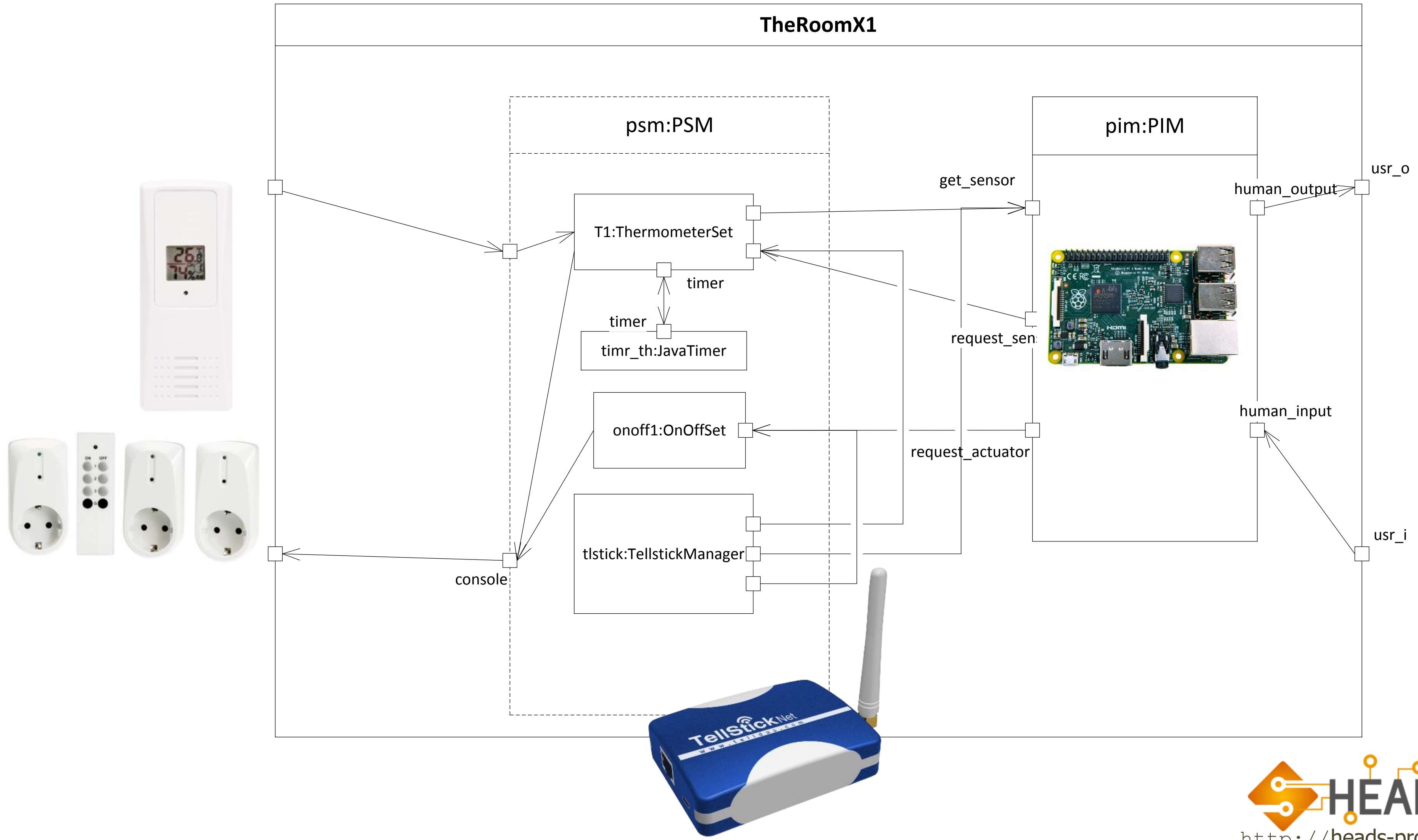
Simple Instruction Manual

- Our running system is The Room with a few gadgets
- This simple manual tells you how to go about making correct use of The Room
  - In the first place, this shows you how to make Happy Day Scenarios

Heterogenous and Distributed Services for the Future Computing Continuum

The Room X1

In one picture



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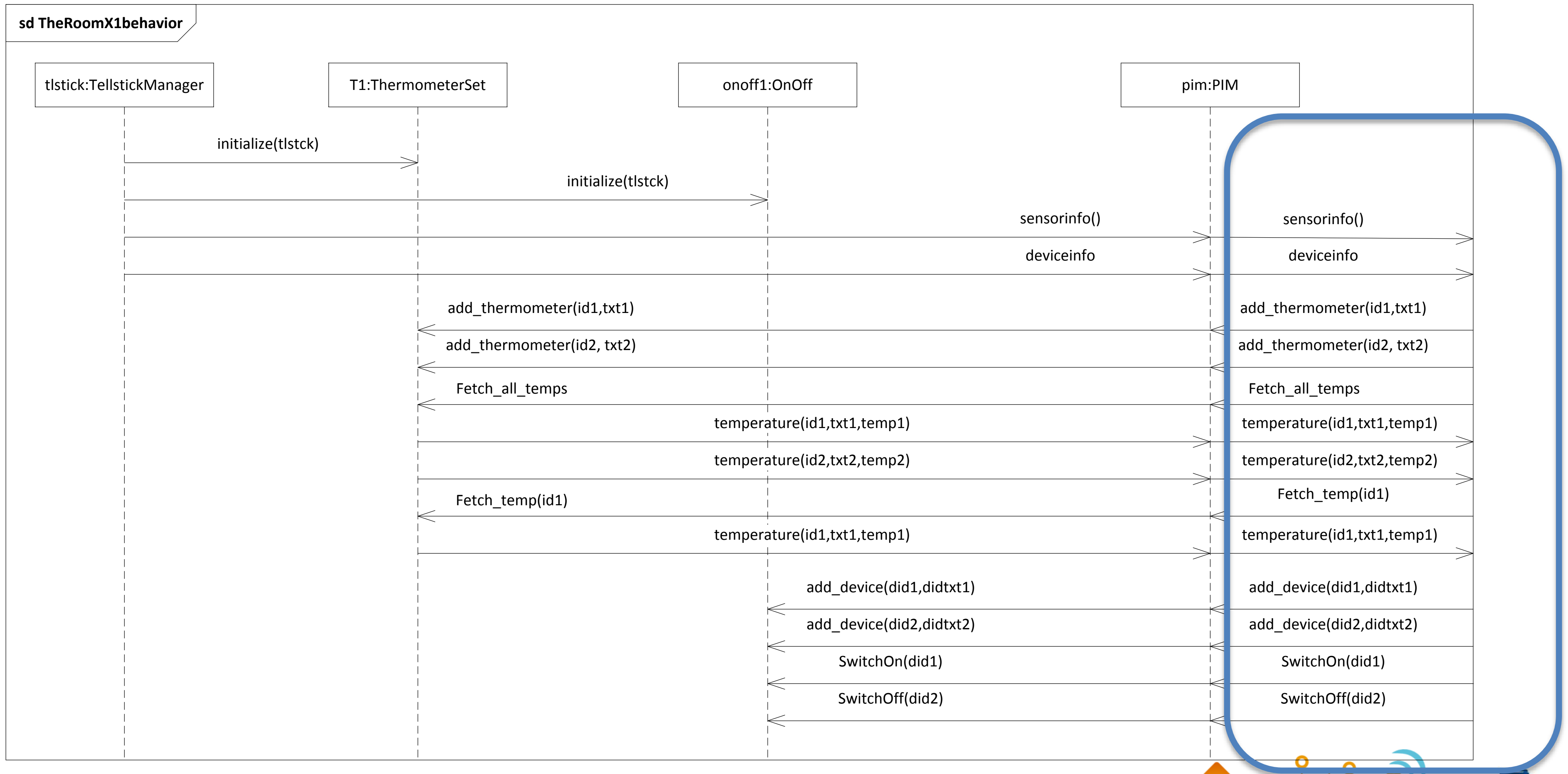
The Room X1 Behavior



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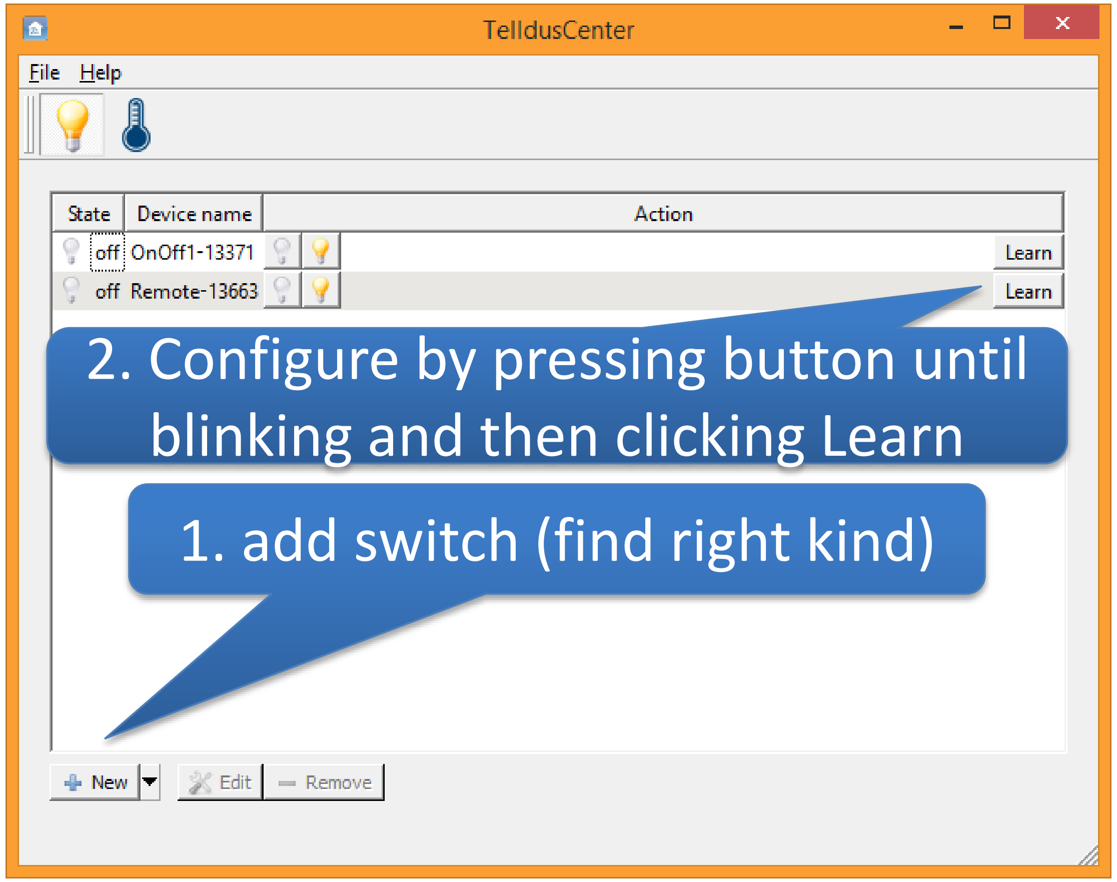
SEVENTH FRAMEWORK PROGRAMME

Overview of the user interface for the real Room system

- Apply Telldus software to configure gadgets
- Execute The Room
  - The Room will print out the configured gadgets
  - You should look at the lists and
    - Add thermometers
    - Add devices (i.e. switches)
  - Ask for temperature observations (fetch_temp, fetch_all_temp)
  - Turn separate switches on or off

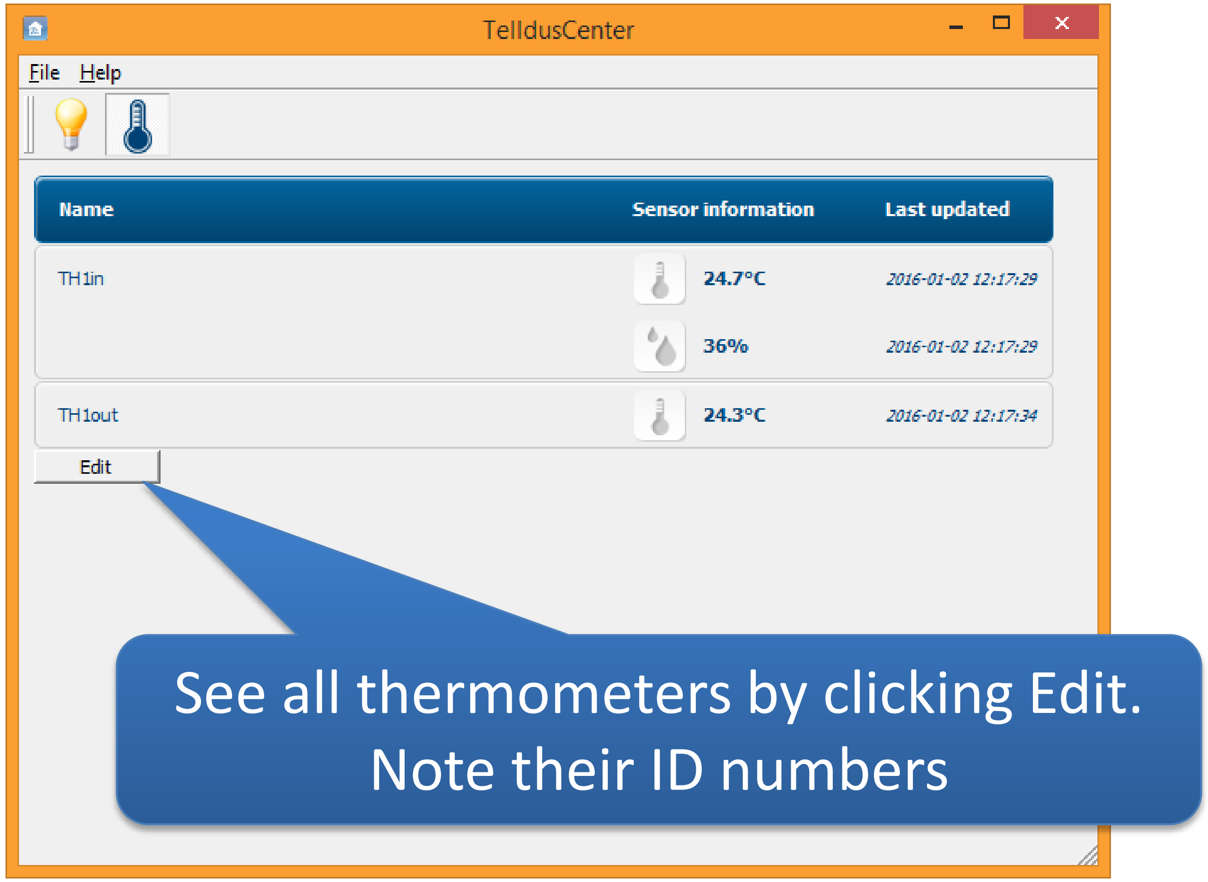
The TellStick Duo software



State	Device name	Action
off	OnOff1-13371	Learn
off	Remote-13663	Learn

2. Configure by pressing button until blinking and then clicking Learn

1. add switch (find right kind)

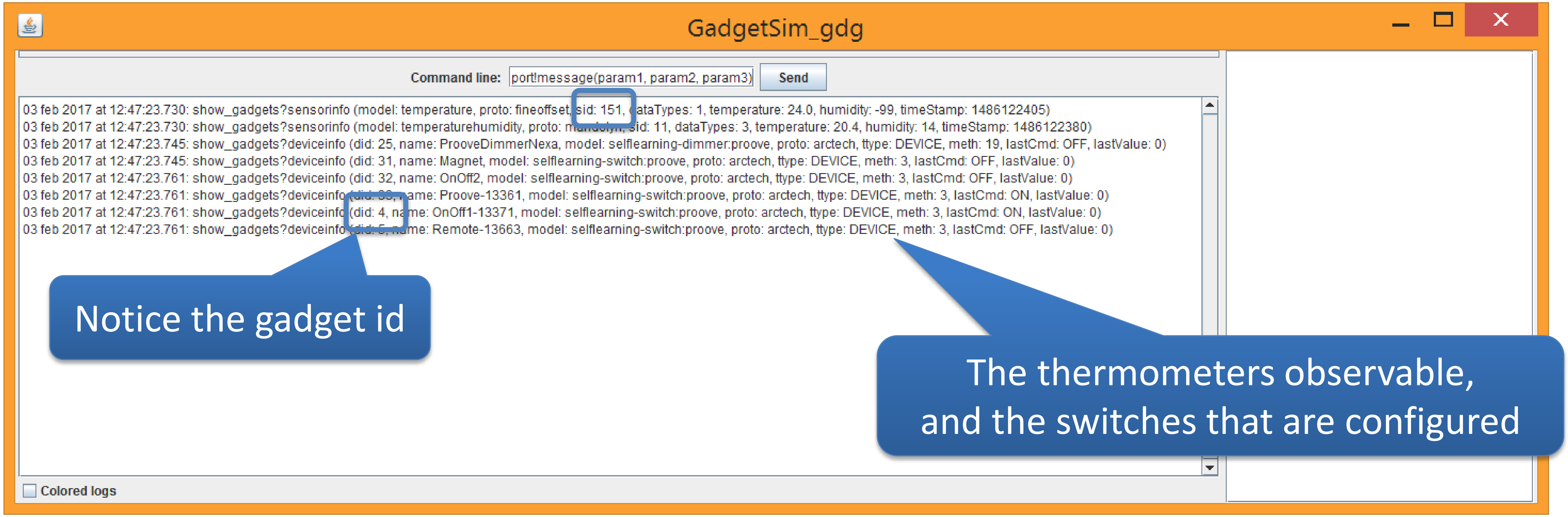


Name	Sensor information	Last updated
TH1in	24.7°C	2016-01-02 12:17:29
	36%	2016-01-02 12:17:29
TH1out	24.3°C	2016-01-02 12:17:34

See all thermometers by clicking Edit. Note their ID numbers

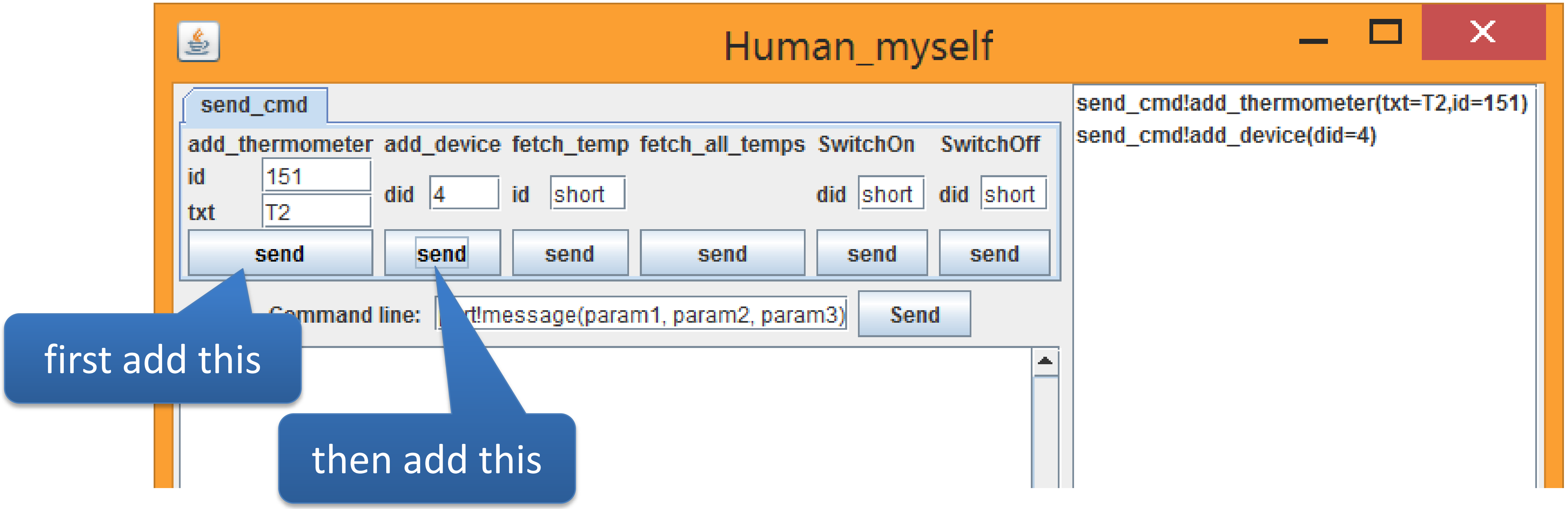
Check that Telldus Service is running in Task Manager (on Windows)

Start executing The Room X1: Gadgets listed


GadgetSim_gdg
Command line:
port!message(param1, param2, param3)
Send
Colored logs
Notice the gadget id
The thermometers observable, and the switches that are configured

```
03 feb 2017 at 12:47:23.730: show_gadgets?sensorinfo (model: temperature, proto: fineoffset, sid: 151, dataTypes: 1, temperature: 24.0, humidity: -99, timeStamp: 1486122405)
03 feb 2017 at 12:47:23.730: show_gadgets?sensorinfo (model: temperaturehumidity, proto: mandolyn, sid: 11, dataTypes: 3, temperature: 20.4, humidity: 14, timeStamp: 1486122380)
03 feb 2017 at 12:47:23.745: show_gadgets?deviceinfo (did: 25, name: ProoveDimmerNexa, model: selflearning-dimmer:proove, proto: arctech, ttype: DEVICE, meth: 19, lastCmd: OFF, lastValue: 0)
03 feb 2017 at 12:47:23.745: show_gadgets?deviceinfo (did: 31, name: Magnet, model: selflearning-switch:proove, proto: arctech, ttype: DEVICE, meth: 3, lastCmd: OFF, lastValue: 0)
03 feb 2017 at 12:47:23.761: show_gadgets?deviceinfo (did: 32, name: OnOff2, model: selflearning-switch:proove, proto: arctech, ttype: DEVICE, meth: 3, lastCmd: OFF, lastValue: 0)
03 feb 2017 at 12:47:23.761: show_gadgets?deviceinfo (did: 33, name: Proove-13361, model: selflearning-switch:proove, proto: arctech, ttype: DEVICE, meth: 3, lastCmd: ON, lastValue: 0)
03 feb 2017 at 12:47:23.761: show_gadgets?deviceinfo (did: 4, name: OnOff1-13371, model: selflearning-switch:proove, proto: arctech, ttype: DEVICE, meth: 3, lastCmd: ON, lastValue: 0)
03 feb 2017 at 12:47:23.761: show_gadgets?deviceinfo (did: 5, name: Remote-13663, model: selflearning-switch:proove, proto: arctech, ttype: DEVICE, meth: 3, lastCmd: OFF, lastValue: 0)
```

We add one thermometer (151) and one switch (4)


Human_myself

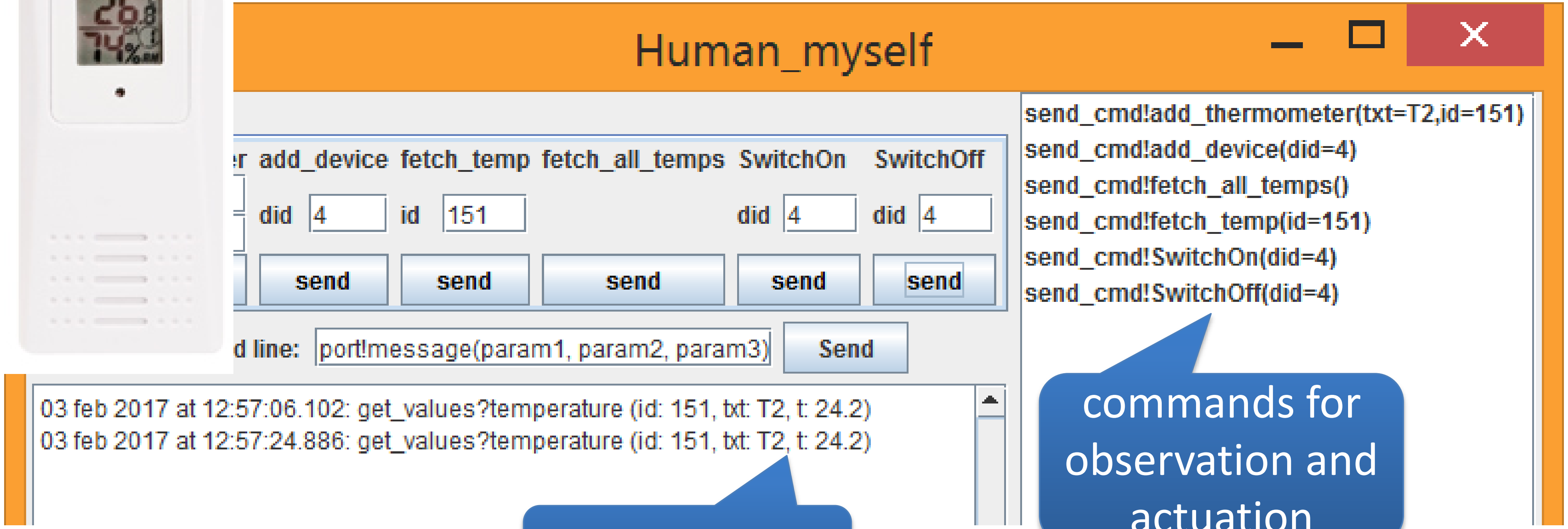
send_cmd

add_thermometer	add_device	fetch_temp	fetch_all_temps	SwitchOn	SwitchOff
id 151 txt T2	did 4	id short		did short	did short
send	send	send	send	send	send

Command line: rt!message(param1, param2, param3) Send

```
send_cmd!add_thermometer(txt=T2,id=151)
send_cmd!add_device(did=4)
```

Then we can observe and actuate


Human_myself
er add_device fetch_temp fetch_all_temps SwitchOn SwitchOff
did 4
id 151
did 4
did 4
send
send
send
send
send
d line: port!message(param1, param2, param3)
Send

```
03 feb 2017 at 12:57:06.102: get_values?temperature (id: 151, txt: T2, t: 24.2)
03 feb 2017 at 12:57:24.886: get_values?temperature (id: 151, txt: T2, t: 24.2)
```

```
send_cmd!add_thermometer(txt=T2,id=151)
send_cmd!add_device(did=4)
send_cmd!fetch_all_temps()
send_cmd!fetch_temp(id=151)
send_cmd!SwitchOn(did=4)
send_cmd!SwitchOff(did=4)
```

commands for observation and actuation

observations

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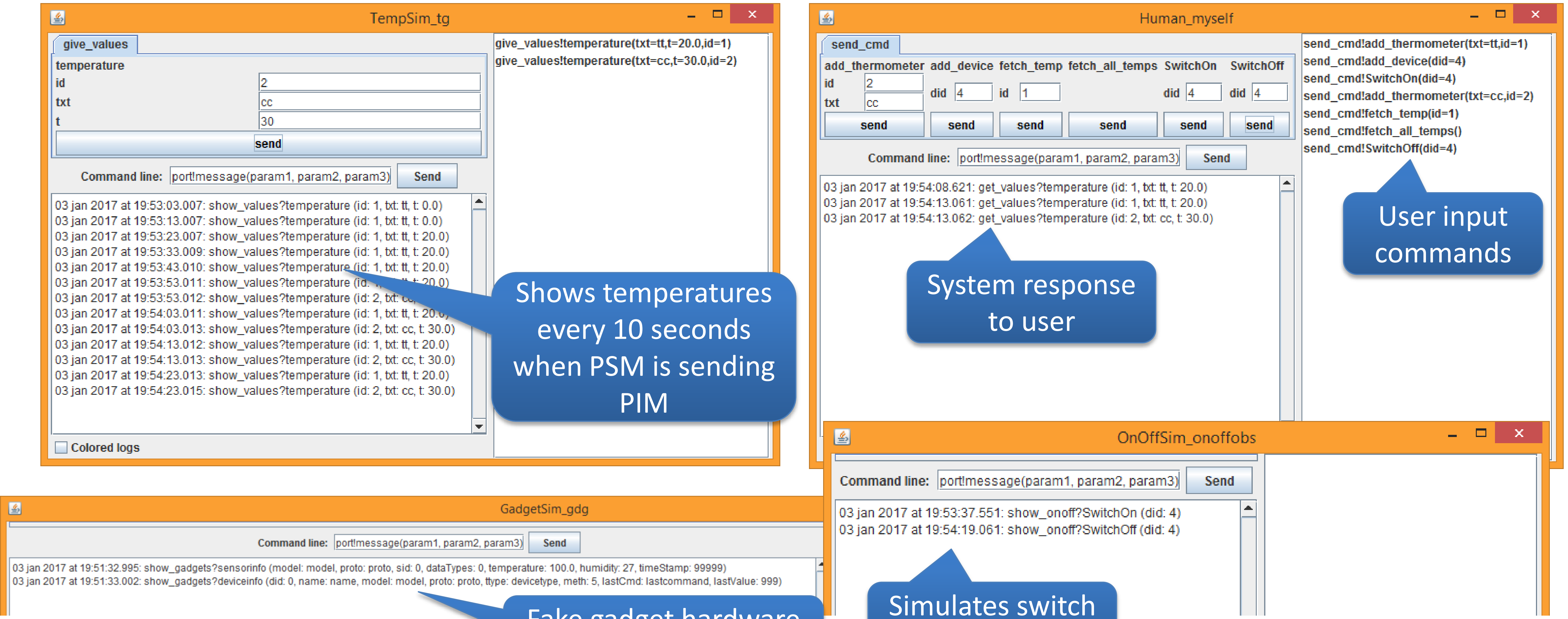
The Room X1 Simulated

Executing The Room X1 Simulated

- Very much the same as the real X1, but you also need to provide temperatures for the thermometers
- You can provide temperatures at any time.
  - The new values take effect within one polling cycle
  - Polling cycle duration can be set in a later version of the model

The Room X1 – A simulated execution



```
give_values!temperature(txt=tt,t=20.0,id=1)
give_values!temperature(txt=cc,t=30.0,id=2)
```

```
03 jan 2017 at 19:53:03.007: show_values?temperature (id: 1, txt: tt, t: 0.0)
03 jan 2017 at 19:53:13.007: show_values?temperature (id: 1, txt: tt, t: 0.0)
03 jan 2017 at 19:53:23.007: show_values?temperature (id: 1, txt: tt, t: 20.0)
03 jan 2017 at 19:53:33.009: show_values?temperature (id: 1, txt: tt, t: 20.0)
03 jan 2017 at 19:53:43.010: show_values?temperature (id: 1, txt: tt, t: 20.0)
03 jan 2017 at 19:53:53.011: show_values?temperature (id: 1, txt: tt, t: 20.0)
03 jan 2017 at 19:53:53.012: show_values?temperature (id: 2, txt: cc,
03 jan 2017 at 19:54:03.011: show_values?temperature (id: 1, txt: tt, t: 20.0)
03 jan 2017 at 19:54:03.013: show_values?temperature (id: 2, txt: cc, t: 30.0)
03 jan 2017 at 19:54:13.012: show_values?temperature (id: 1, txt: tt, t: 20.0)
03 jan 2017 at 19:54:13.013: show_values?temperature (id: 2, txt: cc, t: 30.0)
03 jan 2017 at 19:54:23.013: show_values?temperature (id: 1, txt: tt, t: 20.0)
03 jan 2017 at 19:54:23.015: show_values?temperature (id: 2, txt: cc, t: 30.0)
```

Human_myself
send_cmd
add_thermometer add_device fetch_temp fetch_all_temps SwitchOn SwitchOff
id 2
txt cc
did 4
id 1
did 4
did 4
send send send send send send
Command line: port!message(param1, param2, param3) Send

```
send_cmd!add_thermometer(txt=tt,id=1)
send_cmd!add_device(did=4)
send_cmd!SwitchOn(did=4)
send_cmd!add_thermometer(txt=cc,id=2)
send_cmd!fetch_temp(id=1)
send_cmd!fetch_all_temps()
send_cmd!SwitchOff(did=4)
```

```
03 jan 2017 at 19:54:08.621: get_values?temperature (id: 1, txt: tt, t: 20.0)
03 jan 2017 at 19:54:13.061: get_values?temperature (id: 1, txt: tt, t: 20.0)
03 jan 2017 at 19:54:13.062: get_values?temperature (id: 2, txt: cc, t: 30.0)
```

```
03 jan 2017 at 19:53:37.551: show_onoff?SwitchOn (did: 4)
03 jan 2017 at 19:54:19.061: show_onoff?SwitchOff (did: 4)
```

```
03 jan 2017 at 19:51:32.995: show_gadgets?sensorinfo (model: model, proto: proto, sid: 0, dataTypes: 0, temperature: 100.0, humidity: 27, timeStamp: 99999)
03 jan 2017 at 19:51:33.002: show_gadgets?deviceinfo (did: 0, name: name, model: model, proto: proto, ttype: devicetype, meth: 5, lastCmd: lastcommand, lastValue: 999)
```

Shows temperatures every 10 seconds when PSM is sending PIM
User input commands
System response to user
Fake gadget hardware observation
Simulates switch – on or off

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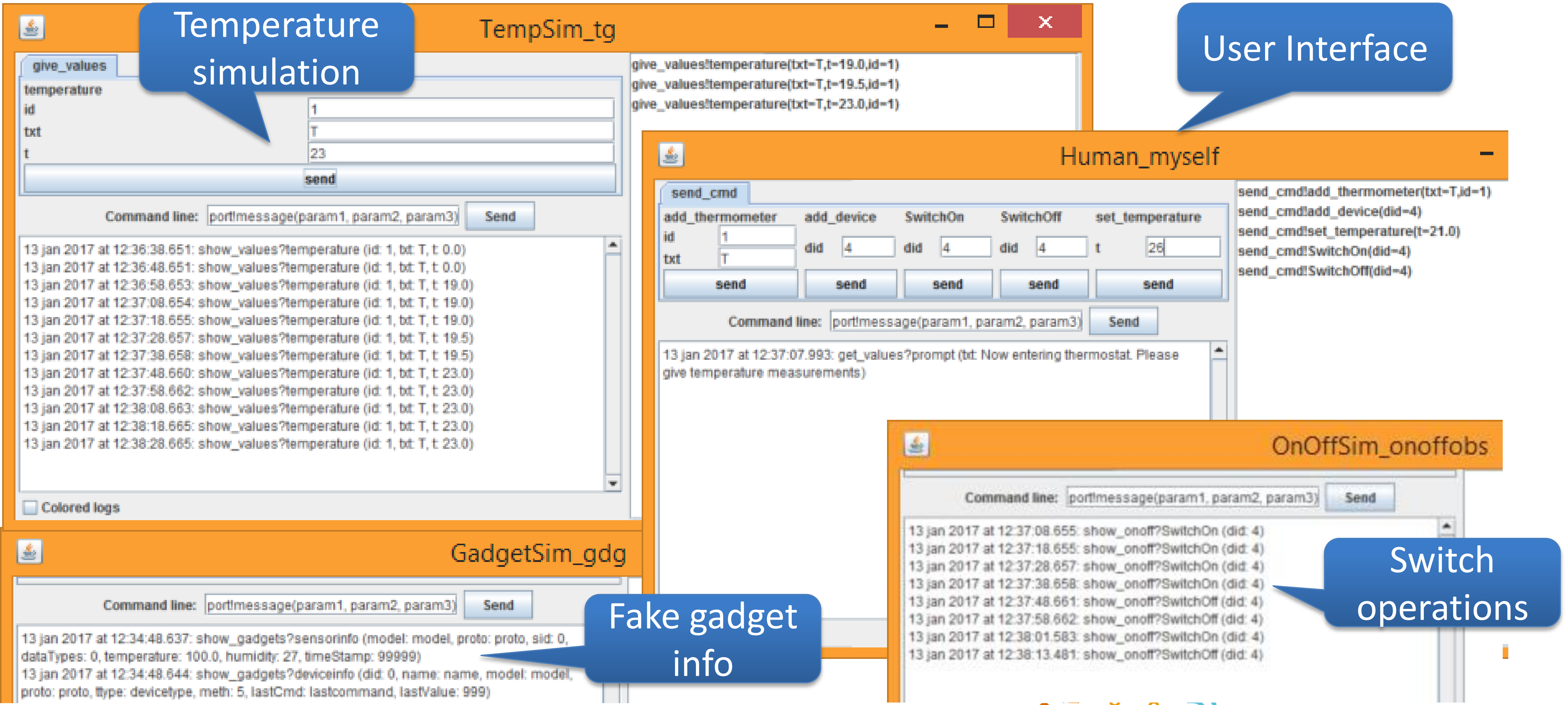
The Room X2 Thermostat Simulated

Executing The Room X2 Thermostat Simulated

- This is very similar to executing X1 simulated
- You add one thermometer and one gadget (in that order)
- Then you set the comfort temperature
- At any time you may input temperature for the simulation of the thermometer
- You may also set the switch to always on or always off
  - and then setting the comfort temperature will again turn the system into a thermostat again

Execution X2 Thermostat



TempSim_tg: id 1, txt T, t 23

```
give_values!temperature(txt=T,t=19.0,id=1)
give_values!temperature(txt=T,t=19.5,id=1)
give_values!temperature(txt=T,t=23.0,id=1)
```

Command line: portlmessage(param1, param2, param3)

```
13 jan 2017 at 12:36:38.651: show_values?temperature (id: 1, txt: T, t: 0.0)
13 jan 2017 at 12:36:48.651: show_values?temperature (id: 1, txt: T, t: 0.0)
13 jan 2017 at 12:36:58.653: show_values?temperature (id: 1, txt: T, t: 19.0)
13 jan 2017 at 12:37:08.654: show_values?temperature (id: 1, txt: T, t: 19.0)
13 jan 2017 at 12:37:18.655: show_values?temperature (id: 1, txt: T, t: 19.0)
13 jan 2017 at 12:37:28.657: show_values?temperature (id: 1, txt: T, t: 19.5)
13 jan 2017 at 12:37:38.658: show_values?temperature (id: 1, txt: T, t: 19.5)
13 jan 2017 at 12:37:48.660: show_values?temperature (id: 1, txt: T, t: 23.0)
13 jan 2017 at 12:37:58.662: show_values?temperature (id: 1, txt: T, t: 23.0)
13 jan 2017 at 12:38:08.663: show_values?temperature (id: 1, txt: T, t: 23.0)
13 jan 2017 at 12:38:18.665: show_values?temperature (id: 1, txt: T, t: 23.0)
13 jan 2017 at 12:38:28.665: show_values?temperature (id: 1, txt: T, t: 23.0)
```

Human_myself: add_thermometer id 1, txt T; add_device did 4; SwitchOn did 4; SwitchOff did 4; set_temperature t 26

```
send_cmd!add_thermometer(txt=T,id=1)
send_cmd!add_device(did=4)
send_cmd!set_temperature(t=21.0)
send_cmd!SwitchOn(did=4)
send_cmd!SwitchOff(did=4)
```

Command line: portlmessage(param1, param2, param3)

```
13 jan 2017 at 12:37:07.993: get_values?prompt (txt: Now entering thermostat. Please
give temperature measurements)
```

OnOffSim_onoffobs

Command line: portlmessage(param1, param2, param3)

```
13 jan 2017 at 12:37:08.655: show_onoff?SwitchOn (did: 4)
13 jan 2017 at 12:37:18.655: show_onoff?SwitchOn (did: 4)
13 jan 2017 at 12:37:28.657: show_onoff?SwitchOn (did: 4)
13 jan 2017 at 12:37:38.658: show_onoff?SwitchOn (did: 4)
13 jan 2017 at 12:37:48.661: show_onoff?SwitchOff (did: 4)
13 jan 2017 at 12:37:58.662: show_onoff?SwitchOff (did: 4)
13 jan 2017 at 12:38:01.583: show_onoff?SwitchOn (did: 4)
13 jan 2017 at 12:38:13.481: show_onoff?SwitchOff (did: 4)
```

GadgetSim_gdg

Command line: portlmessage(param1, param2, param3)

```
13 jan 2017 at 12:34:48.637: show_gadgets?sensorinfo (model: model, proto: proto, sid: 0,
dataTypes: 0, temperature: 100.0, humidity: 27, timeStamp: 99999)
13 jan 2017 at 12:34:48.644: show_gadgets?deviceinfo (did: 0, name: name, model: model,
proto: proto, ttype: devicetype, meth: 5, lastCmd: lastcommand, lastValue: 999)
```

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