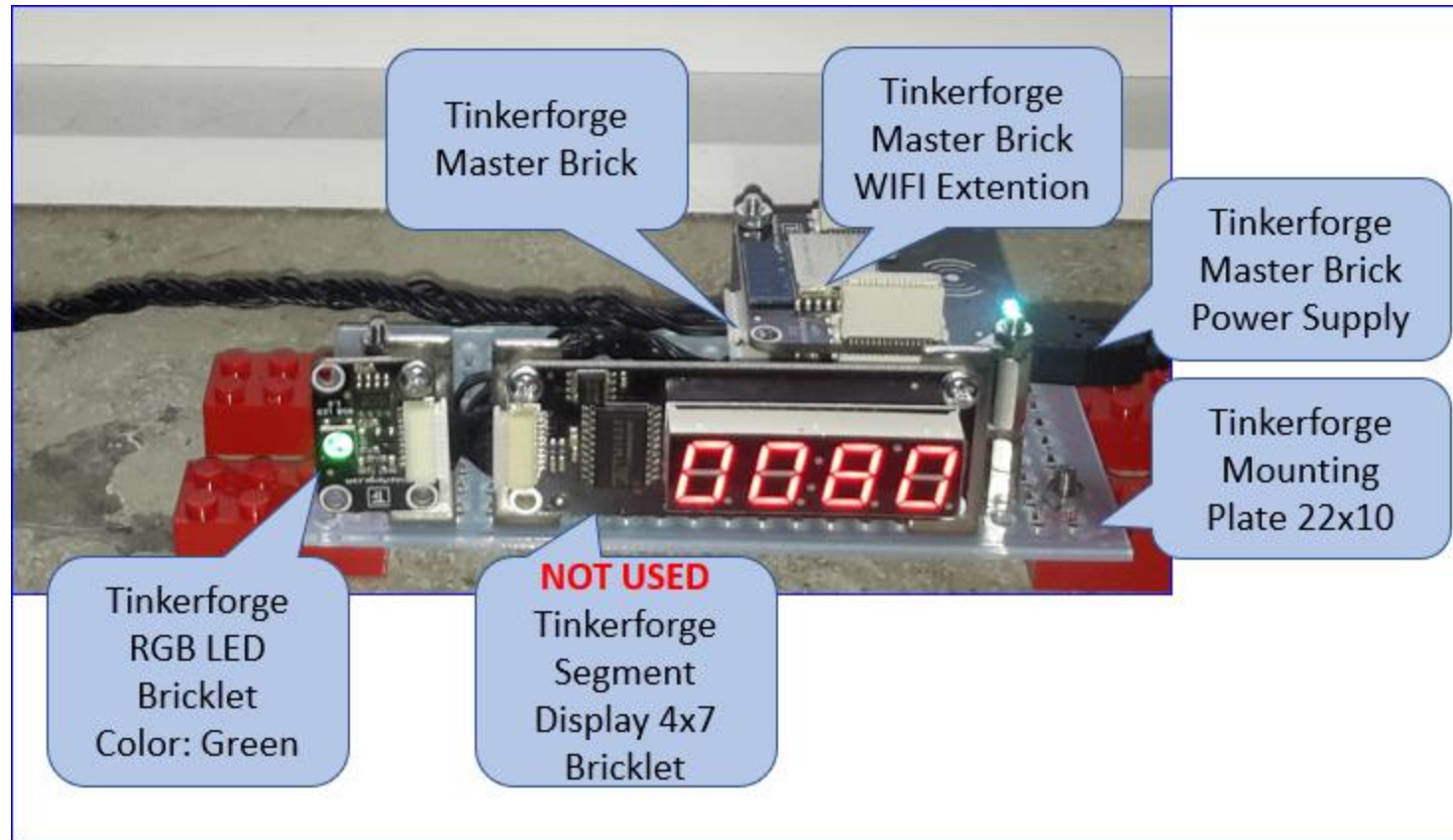# Domoticz Plugin

TrafficLight

(using Tinkerforge Building Blocks)
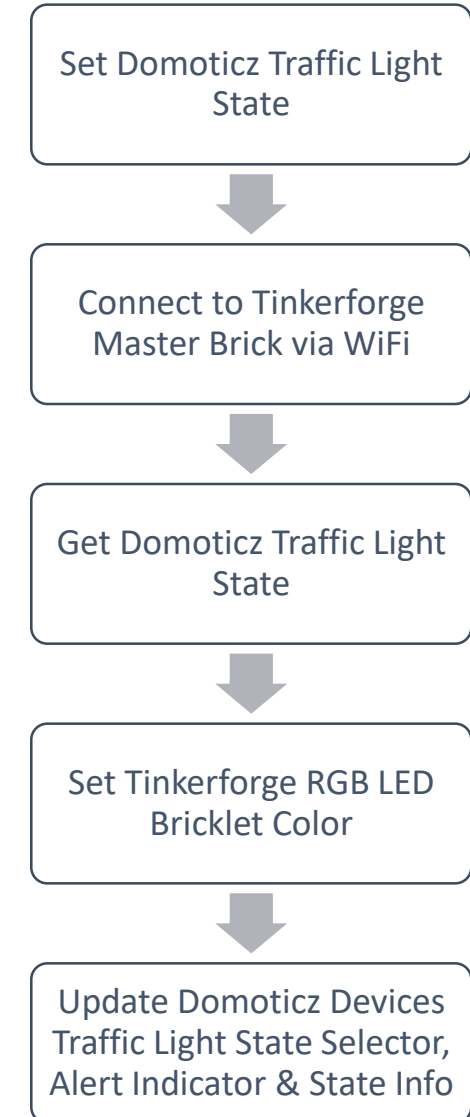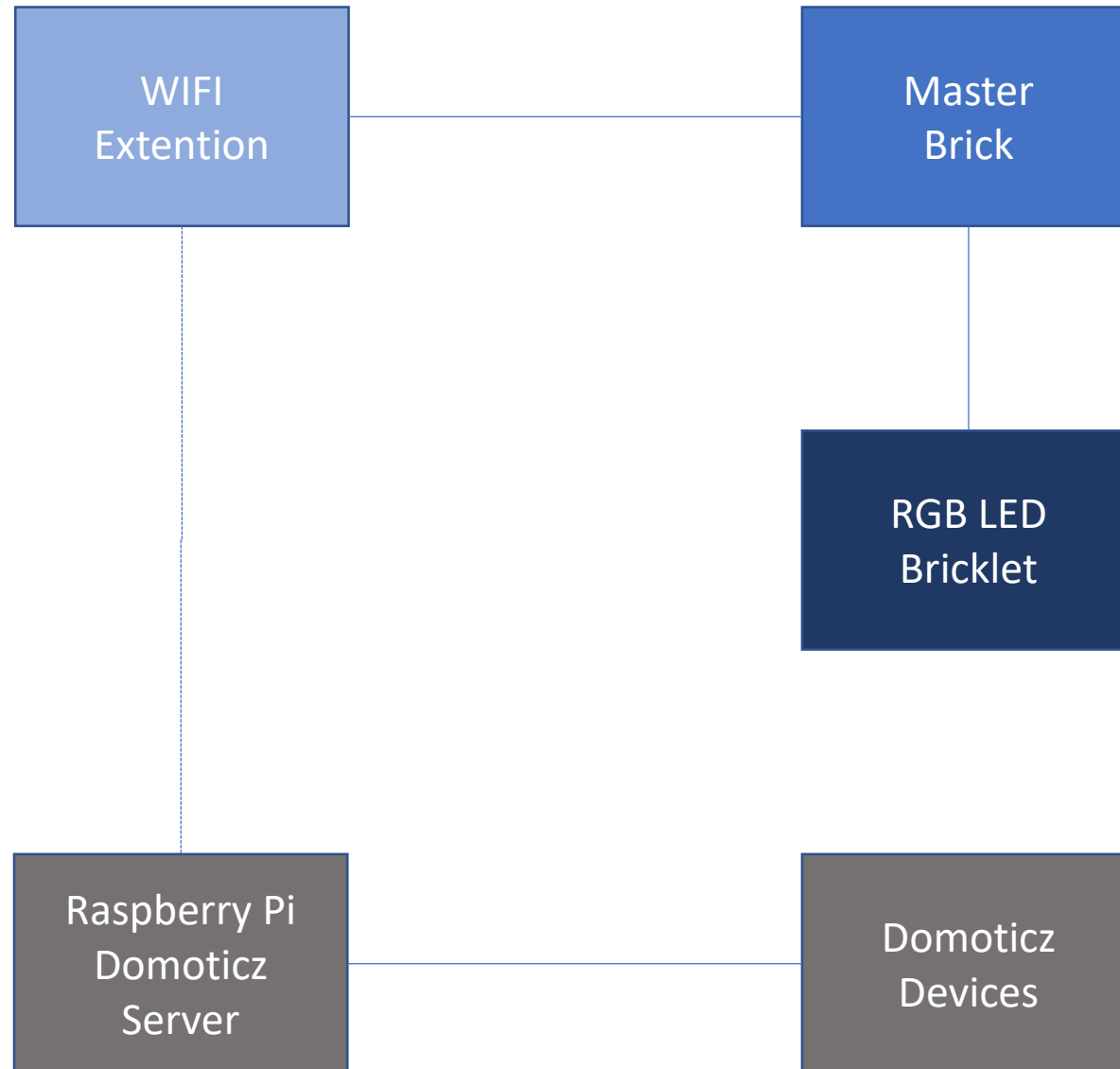
By Robert W. B. Linn

27.05.2019

Prototype

Overview Hardware & Flow

Domoticz – Add new Hardware Traffic Light

Notes
<ADD>

Read plugin.py

```
"""
<plugin key="TrafficLight" name="Traffic Light" author="rwbL" version="1.0.0">
    <description>
        <h2>Traffic Light</h2><br/>
        Set the color of a Tinkerforge RGB LED Bricklet to RED,YELLOW or GREEN via Domoticz Selector
Switch device.
        <h3>Features</h3>
        <ul style="list-style-type:square">
            <li>Traffic Light Color (R-G-B): RED=255-0-0; YELLOW=255-255-0; GREEN=0-255-0</li>
            <li>Traffic Light Brightness</li>
        </ul>
        <h3>Traffic Light Devices</h3>
        <ul style="list-style-type:square">
            <li>Set Traffic Light Color via Selector Switch with options RED, YELLOW or GREEN</li>
            <li>Display Traffic Light Alert Indicator</li>
            <li>Display Traffic Light Change Info</li>
        </ul>
        <h3>Configuration</h3>
        Requires the HTTP address and Port of the Master Brick WiFi Extention and the UID of the
Tinkerforge RGB LED Bricklet.
    </description>
    <params>
        <param field="Address" label="Host" width="200px" required="true" default="ip-address"/>
        <param field="Port" label="Port" width="75px" required="true" default="4223"/>
        <param field="Mode1" label="UID" width="75px" required="true" default="zMF"/>
        <param field="Mode4" label="Brightness" width="75px" required="true" default="100"/>
        <param field="Mode6" label="Debug" width="75px">
            <options>
                <option label="True" value="Debug" default="true"/>
                <option label="False" value="Normal"/>
            </options>
        </param>
    </params>
</plugin>
"""
```

Domoticz – Add new Hardware Traffic Light - Domoticz Log

The Domoticz Log after adding the new hardware. There are 3 new devices created and set to used.

	13	Traffic Light	00070001	1	Traffic Light - State Selector	Light/Switch	Selector Switch	Off
⚠	14	Traffic Light	00070002	2	Traffic Light - Alert Indicator	General	Alert	No Alert!
	15	Traffic Light	00070003	3	Traffic Light - Change Info	General	Text	

```
2019-05-27 09:43:31.992 Status: (Traffic Light) Started.
2019-05-27 09:43:32.550 (Traffic Light) Debug logging mask set to: PYTHON PLUGIN QUEUE IMAGE DEVICE CONNECTION MESSAGE ALL
2019-05-27 09:43:32.550 (Traffic Light) 'DomoticzHash':'fccd39bb'
2019-05-27 09:43:32.550 (Traffic Light) 'HardwareID':'7'
2019-05-27 09:43:32.550 (Traffic Light) 'Database':'/home/pi/domoticz/domoticz.db'
2019-05-27 09:43:32.550 (Traffic Light) 'Version':'1.0.0'
2019-05-27 09:43:32.550 (Traffic Light) 'HomeFolder':'/home/pi/domoticz/plugins/TrafficLight/'
2019-05-27 09:43:32.550 (Traffic Light) 'DomoticzVersion':'4.10826'
2019-05-27 09:43:32.550 (Traffic Light) 'Name':'Traffic Light'
2019-05-27 09:43:32.550 (Traffic Light) 'Mode6':'Debug'
2019-05-27 09:43:32.550 (Traffic Light) 'DomoticzBuildTime':'2019-05-24 10:04:40'
2019-05-27 09:43:32.550 (Traffic Light) 'Mode4':'100'
2019-05-27 09:43:32.550 (Traffic Light) 'StartupFolder':'/home/pi/domoticz/'
2019-05-27 09:43:32.550 (Traffic Light) 'Port':'4223'
2019-05-27 09:43:32.550 (Traffic Light) 'Key':'TrafficLight'
2019-05-27 09:43:32.550 (Traffic Light) 'Language':'en'
2019-05-27 09:43:32.550 (Traffic Light) 'Address':'ip-address'
2019-05-27 09:43:32.550 (Traffic Light) 'Author':'rwbL'
2019-05-27 09:43:32.550 (Traffic Light) 'UserDataFolder':'/home/pi/domoticz/'
2019-05-27 09:43:32.550 (Traffic Light) 'Mode1':'zMF'
2019-05-27 09:43:32.550 (Traffic Light) Device count: 0
2019-05-27 09:43:32.550 (Traffic Light) Creating new Devices
2019-05-27 09:43:32.551 (Traffic Light) Creating device 'State Selector'.
2019-05-27 09:43:32.552 (Traffic Light) Device created: Traffic Light - State Selector
2019-05-27 09:43:32.552 (Traffic Light) Creating device 'Alert Indicator'.
2019-05-27 09:43:32.553 (Traffic Light) Device created: Traffic Light - Alert Indicator
2019-05-27 09:43:32.553 (Traffic Light) Creating device 'Change Info'.
2019-05-27 09:43:32.554 (Traffic Light) Device created: Traffic Light - Change Info
2019-05-27 09:43:32.554 (Traffic Light) Pushing 'PollIntervalDirective' on to queue
2019-05-27 09:43:32.554 (Traffic Light) Processing 'PollIntervalDirective' message
2019-05-27 09:43:32.554 (Traffic Light) Heartbeat interval set to: 60.
2019-05-27 09:43:32.547 Status: (Traffic Light) Entering work loop.
2019-05-27 09:43:32.548 Status: (Traffic Light) Initialized version 1.0.0, author 'rwbL'
```

Domoticz Traffic Light - Devices

There are 3 new devices created, with an initial state & info, set to used and manually added to the dashboard.

⏻	13	Traffic Light	00070001	1	Traffic Light - State Selector	Light/Switch	Selector Switch	Off
⚠	14	Traffic Light	00070002	2	Traffic Light - Alert Indicator	General	Alert	No Alert!
📄	15	Traffic Light	00070003	3	Traffic Light - Change Info	General	Text	

The dashboard after setting the Traffic Light to RED via the State Selector Device.

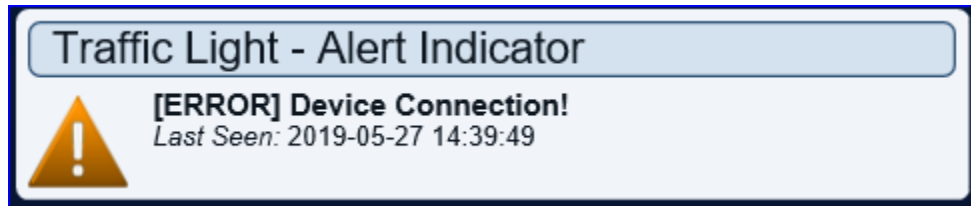# Domoticz Traffic Light – State Changed from Off to RED

The initial state is Off.

The log shows changing the state to RED by pressing RED button on the State Selector Switch.

```
2019-05-27 09:51:50.997 Status: User: Admin initiated a switch command (13/Traffic Light - State Selector/Set Level)
2019-05-27 09:51:51.002 (Traffic Light) Processing 'onCommandCallback' message
2019-05-27 09:51:51.002 (Traffic Light) Calling message handler 'onCommand'.
2019-05-27 09:51:51.003 (Traffic Light) onCommand called for Unit 1: Parameter 'Set Level', Level: 10
2019-05-27 09:51:51.012 (Traffic Light) IP Connection - OK
2019-05-27 09:51:51.012 (Traffic Light) Traffic Light - State Selector-Traffic Light State New=10
2019-05-27 09:51:51.012 (Traffic Light) Traffic Light - State Selector-nValue=0,sValue=
2019-05-27 09:51:51.017 (Traffic Light) Traffic Light - State Selector-RGB LED Colors R-G-B:0-100-0
2019-05-27 09:51:51.018 (Traffic Light) RGB LED Brightness updated:100
2019-05-27 09:51:51.018 (Traffic Light - State Selector) Updating device from 0:'' to have values 2:'10'.
2019-05-27 09:51:51.030 (Traffic Light) Traffic Light - State Selector-nValue=2,sValue=10
2019-05-27 09:51:51.030 (Traffic Light - Alert Indicator) Updating device from 0:'No Alert!' to have values 4:'RED'.
2019-05-27 09:51:51.038 (Traffic Light) Traffic Light - Alert Indicator-nValue=4,sValue=RED
2019-05-27 09:51:51.038 (Traffic Light - Change Info) Updating device from 0:'' to have values 0:'Traffic Light changed from 0 to 10'.
2019-05-27 09:51:51.045 (Traffic Light) Traffic Light - Change Info-nValue=0,sValue=Traffic Light changed from 0 to 10
2019-05-27 09:51:51.148 (Traffic Light) TrafficLight Update: OK
```

Domoticz Traffic Light – State Change Error

Example of an Error message triggered by changing a color by the Selector Switch and caused by the Master Brick not powered up. This results in a IP Connection failed error.


```
2019-05-27 14:48:37.140 (Traffic Light) onCommand called for Unit 1: Parameter 'Set Level', Level: 20
2019-05-27 14:48:37.101 Status: User: Admin initiated a switch command (13/Traffic Light - State Selector/Set Level)
2019-05-27 14:48:40.298 (Traffic Light) [ERROR] IP Connection failed
2019-05-27 14:48:40.299 (Traffic Light - Alert Indicator) Updating device from 3:'-[ERROR] Device Connection!' to have values 3:'[ERROR] Device Connection!'.
2019-05-27 14:48:40.307 (Traffic Light) Traffic Light - Alert Indicator-nValue=3,sValue=[ERROR] Device Connection!
2019-05-27 14:48:40.307 (Traffic Light) [ERROR] Device Connection!
```

Domoticz Traffic Light – Plugin Code Snippet onCommand

```python
def onCommand(self, Unit, Command, Level, Hue):
    try:
        ipcon = IPConnection()
        lb = BrickletRGBLED(Parameters["Mode1"], ipcon)
        ipconnected = 0
        try:
            ipcon.connect(Parameters["Address"], int(Parameters["Port"]))
            ipconnected = 1
        except:
            Domoticz.Debug("[ERROR] IP Connection failed")

        if ipconnected == 0:
            Devices[2].Update( nValue=3, sValue="[ERROR] Device Connection!")
            return

        oldtrafficlightstate = 0
        if Devices[1].sValue != "":
            oldtrafficlightstate = int(Devices[1].sValue)
        newtrafficlightstate = Level
        rgbvalue = lb.get_rgb_value()
        lbbrightness = int(Parameters["Mode4"])

        trafficlightcolor = "UNKNOWN"
        trafficlightalert = 0
        if newtrafficlightstate == 10: lb.set_rgb_value(lbbrightness, 0, 0); trafficlightcolor = "RED"; trafficlightalert = 4
        if newtrafficlightstate == 20: lb.set_rgb_value(lbbrightness, lbbrightness, 0); trafficlightcolor = "YELLOW"; trafficlightalert = 2
        if newtrafficlightstate == 30: lb.set_rgb_value(0, lbbrightness, 0); trafficlightcolor = "GREEN"; trafficlightalert = 1

        Devices[1].Update( nValue=2, sValue=str(newtrafficlightstate) )
        Devices[2].Update( nValue=trafficlightalert, sValue=trafficlightcolor )
        Devices[3].Update( nValue=0, sValue="Traffic Light changed from " + str(oldtrafficlightstate) + " to " + str(newtrafficlightstate) )
        ipcon.disconnect()
    except:
        if ipconnected == 1:
            ipcon.disconnect()
        Devices[2].Update( nValue=3, sValue="[ERROR] Check settings, correct and restart Domoticz")
```

Domoticz Traffic Light – Set State via HTTP

Set the Traffic Light (idx=13) State to GREEN by setting the level to 30:
http://ip-
address:8080/json.htm?type=command&param=switchlight&idx=13&switchcmd=Set%20Level&level=30

Resulting in HTTP response
{ "status" : "OK", "title" : "SwitchLight" }

The plugin onCommand function is triggered and the devices are updated.
Check the Domoticz Web-UI:
- http://ip:8080/#/Dashboard
- http://ip:8080/#/Log

The Traffic Light Levels can be set to:
10=RED,20=YELLOW,30=GREEN