

Micasaverde /GetVera is producing a product family of zWave controllers called Vera 3, Vera Lite and Vera Edge now. These product come with a user interface layer called UI and which exists in 2 versions as we speak : UI5 and UI7.

Unfortunately the long awaited UI7 has been kind of a disappointment , especially with its unresponsiveness , not really well optimized screen real estate, and difficult to deal with for 3<sup>rd</sup> party plug in writers. It was also promising a mobile user interface and the application does not resize well on phone or on desktops and the mobile version of the application is not user friendly.

I started to work on a UI replacement.

This document covers:

1. The overall project objectives & “big” rules
2. The screen shots
3. The installation instructions
4. Some internal explanation of the source code & architecture

## Table of Contents

The project initial objectives.....	2
Objectives .....	2
DONE and functional so far.....	3
Screen shots:.....	5
UI5 Installation Instructions (similar for UI7).....	32
Architecture and Source Code organization .....	48
Extensibility .....	49
Mechanisms to extend.....	49
Javascript modules for customizable plugins .....	49
Full Source code .....	50
Source Files: .....	51
Basic rules for developers:.....	53

# The project initial objectives

I am not fully satisfied with UI5 or UI7 and I think we can provide very quick improvement. French users of Orange HomeLive system on internet seems to be Highly largely unsatisfied by the UI and we could improve this relatively easily adopting a refreshed approach & architecture. ( remains to be seen if orange is going to be open to this but we should try )

## Objectives

1. **Fast & immediately responsive** ( except LUA Jobs of course, cant control that ). Asynchronous / threaded programming as much as possible.
2. Avoid the classic UIx issues with too many **heterogeneous js frameworks**, inconsistent CSS rules requiring ticks all over the place and overuse of the “! Important”
3. Does **not require anything** other infrastructure than the **VERA** itself and a simple plugin. No PHP, No DB, No additional server running. Just plain VERA
4. Really use the **power of the client side** machine ( big processors & memory ) and far less the Vera side.
5. Works well on all screen size, **full responsive design** using bootstrap
6. Really use [bootstrap](#) facilities for responsiveness, should work on Phone 4S as well as tablets, as well as desktop / large screens. Same app, same code, same access url
7. Dashboards should be optimized in screen real estate. **Undo the UI5 design decision** which links the Scene editor with the dashboard. You can only put in scene what is in the dashboard ( unless you use the advanced feature ). Dashboard requires maximum use of the screen real estate, Scene editor is something else.
8. Plugin authors should be able to control the display of their device using a **simple javascript functions** , even on the dashboard page. Should not be limited to a VERA Box api or any complex undocumented json behaviors. Just a dynamically loaded javascript which can make full use of bootstrap & useful libraries provided
9. **Full reuse of dynamic icons** ( don t want to recreate icons or each plugin logics here ) from the json descriptions
10. **Dashboards should customizable by the end user**, he choses the pages and the devices he wants to see ( not done yet at this point ! )
11. Later on , more features, reuse of UI7 json descriptions for dashboards, control buttons etc if possible. To be investigated
12. Works on UI5 and UI7 with minor degradation on UI5 ( housemode for instance )

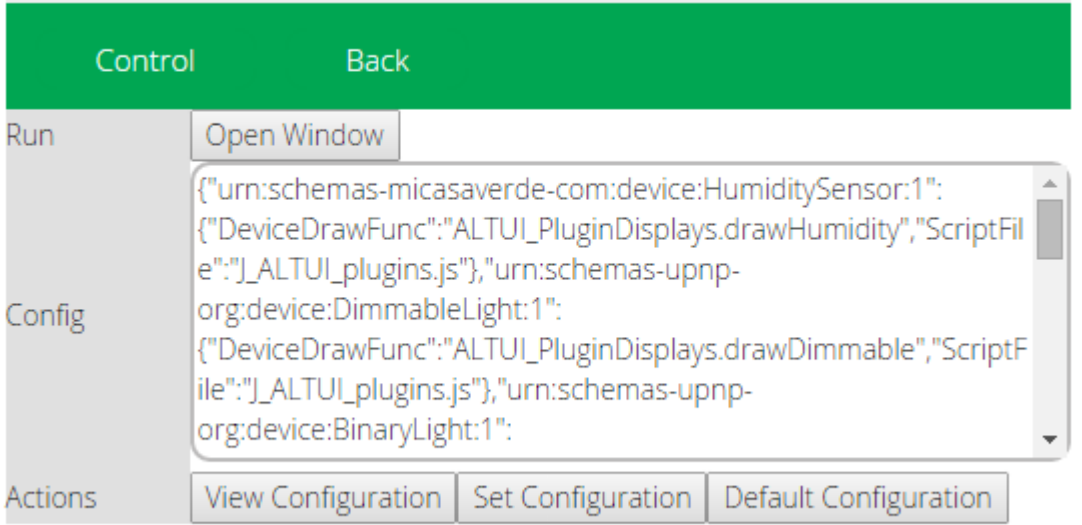
## DONE and functional so far – VERSION 0.29

I already uses this more than UI7 on my ipad/phone and desktop at home. So far achievements are the following:

- Single plugin to install. Then access via the setting tab, or directly via :  
[http://<veraip>/port\\_3480/data\\_request?id=lr\\_ALTUI\\_Handler&command=home#](http://<veraip>/port_3480/data_request?id=lr_ALTUI_Handler&command=home#)
- **Remote access login** via a PHP page located at <http://amg0.site11.com/Veralogin.php> or <http://www.amg0.890m.com/Veralogin.php>
  - Unlike UI5 UI7, All plugins **custom ICONS are working** on remote access screen ! The backend servers of VERA ( MMS ) are not transporting/caching custom icons. This application uses a different technique, the plugin handler transmit necessary images as data URI and the client caches them
- Full responsive design, bootstrap & jquery based . check on your iPad when you rotate from portrait to landscape, it is quite fun , it just adds a column
- HouseMode view & change on ui7
- Footer display of VERA parameters ( serial etc )
- List / Delete Rooms
- List devices with ultra simple and small dashboard
  - Device drawing can be customized by an individual js file. List of files to load is hard coded in the .LUA plugin code file but I ll change that later
  - Device Variable display : alphabetically sorted, htmlEncoded ( so xml & json appear properly ) , **humanly readable timestamps**.
  - Device variable Edit capability : click on it, modify, click out ( it will save it automatically )
  - Device UPNP action dialog to dynamically retrieve actions & parameters names and enable the user to trigger action from this dialog.
  - Device Control Panel for a full page drawing customizable by device type dynamically. By default if no plugin is provided to customize the control panel , **the control panel page will display the same “control” tab as the plugging is doing on the VERA box UI5 UI7 ( the “flash” tab in the JSON device settings )**. It will try to emulate the vera device control placement rules as much as possible so the look & feel is similar to what the plugin author intended. If that is not enough or if a finer grained customization is wished in the user interface, the full ability to write a custom UI in a dynamically loaded javascript module is possible
  - Ability to filter devices on the device page by
    - per Room of devices
    - per Category of Device
    - per Battery device or not
    - per Visible /Invisible status
    - by name ( filter “as you type” a name to search)
  - Display / color of Battery level
  - Room filtering selection in the left bar

- List Delete , Edit, Run Scene
  - Full display of the scene parameters & lua code
  - Display of last run, next rune timestamp
  - Room filtering selection in the left bar
  - Edit features :
    - enable/disable & delete for triggers/timers/actions/groups and room assignment.
    - Delete individual triggers/timers/actions/groups
    - Add/edit Lua code for event triggers ( UI7 does not have this capability, UI5 used to have it )
  - Wip...
- 2 fully asynchronous engines : user\_data/l\_data processing engine and UI refresh engine.
- See device dashboard and can filter by room
  - Implemented :
    - powerswitch, humidity, temperature, dimmers, door lock, door sensor, window covers
    - example of custom 3<sup>rd</sup> party plugin display: iphonelocator, cplus,
    - Motion sensor ( arm / trip status )
    - all device icons are working ( even if dynamic) including 3<sup>rd</sup> party plugin, including old UI5 mode ones
  - Not yet :
    - camera,
    - 3<sup>rd</sup> party plugin ( but if authors are interested it is very easy, checkout the IphoneLocator .JS file )
- Plugins
  - Icon, name and version
  - List of installed 3<sup>rd</sup> party plugins with version and button to go directly to
    - Author help page
    - MIOS App Store page for the plugin
    - Single button to update to latest version
- Lua restart command in the menu
- Lua startup code edition
- Lua test code dialog box ( broken feature on UI7 chrome )
- User control for the cache of icon & files in persistent storage ( local storage HTML5 so persistent on a given machine ). User can save or clear the cache. It will avoid redownloading icons unnecessarily
- Credit page

# Screen shots:

LUA plugin	<p>Plugin Setting for configuration :</p> <p>Open =&gt; launch the ALTUI window</p> <p>Dynamic configuration for additional modules/plugin display functions</p> <p>Reset config to default</p> <p>Open &amp; View configuration in a online json viewer</p>  <pre>{   "urn:schemas-micasaverde-com:device:HumiditySensor:1": {     "DeviceDrawFunc": "ALTUI_PluginDisplays.drawHumidity",     "ScriptFile": "J_ALTUI_plugins.js"   },   "urn:schemas-upnp-org:device:DimmableLight:1": {     "DeviceDrawFunc": "ALTUI_PluginDisplays.drawDimmable",     "ScriptFile": "J_ALTUI_plugins.js"   },   "urn:schemas-upnp-org:device:BinaryLight:1": {     "DeviceDrawFunc": "ALTUI_PluginDisplays.drawBinaryLight",     "ScriptFile": "J_ALTUI_plugins.js"   } }</pre>
------------	---

JSON Editor Online

powered by ace

```
1 [{"urn:schemas-micasaverde-com:device:HumiditySensor:1":{"DeviceDrawFunc":"ALTUI_PluginDisplays.drawHumidity","ScriptFile":"J_ALTUI_plugins.js"},"urn:schemas-upnp-org:device:DimmableLight:1":{"DeviceDrawFunc":"ALTUI_PluginDisplays.drawDimmable","ScriptFile":"J_ALTUI_plugins.js"},"urn:schemas-upnp-org:device:BinaryLight:1":{"StyleFunc":"ALTUI_PluginDisplays.getStyle","DeviceDrawFunc":"ALTUI_PluginDisplays.drawBinaryLight","ControlPanelFunc":"ALTUI_PluginDisplays.drawBinLightControlPanel","ScriptFile":"J_ALTUI_plugins.js"},"info":{"ui7Check":"true"},"urn:schemas-micasaverde-com:device:TemperatureSensor:1":{"DeviceDrawFunc":"ALTUI_PluginDisplays.drawTempSensor","ScriptFile":"J_ALTUI_plugins.js"},"urn:schemas-upnp-org:device:cplus:1":{"DeviceDrawFunc":"ALTUI_IPhoneLocator.drawCanalplus","ScriptFile":"J_ALTUI_iphone.js"},"urn:schemas-micasaverde-com:device:MotionSensor:1":{"DeviceDrawFunc":"ALTUI_PluginDisplays.drawMotion","ScriptFile":"J_ALTUI_plugins.js"},"urn:schemas-upnp-org:device:IPhoneLocator:1":{"StyleFunc":"ALTUI_IPhoneLocator.getStyle","DeviceDrawFunc":"ALTUI_IPhoneLocator.drawIPhone","ControlPanelFunc":"ALTUI_IPhoneLocator.drawControlPanel","ScriptFile":"J_ALTUI_iphone.js"},"urn:schemas-micasaverde-com:device:WindowCovering:1":{"DeviceDrawFunc":"ALTUI_PluginDisplays.drawWindowCover","ScriptFile":"J_ALTUI_plugins.js"}}}]
```

object {9}

urn:schemas-micasaverde-com:device:HumiditySensor:1 {2}

urn:schemas-upnp-org:device:DimmableLight:1 {2}

urn:schemas-upnp-org:device:BinaryLight:1 {4}

StyleFunc : ALTUI\_PluginDisplays.getStyle

DeviceDrawFunc : ALTUI\_PluginDisplays.drawBinaryLight

ControlPanelFunc : ALTUI\_PluginDisplays.drawBinLightControlPanel

ScriptFile : J\_ALTUI\_plugins.js

info {1}

urn:schemas-micasaverde-com:device:TemperatureSensor:1 {2}

urn:schemas-upnp-org:device:cplus:1 {2}

urn:schemas-micasaverde-com:device:MotionSensor:1 {2}

urn:schemas-upnp-org:device:IPhoneLocator:1 {4}

urn:schemas-micasaverde-com:device:WindowCovering:1 {2}

Remove  
Access via  
MMS servers  
for UI7 boxes

Step 1:

VERA AltUI

VERA AltUI

Détails

VERA AltUI

Alexa

www.amg0.890m.com/Veralogin.php

vera

Smarter Home Control

Remote Login to VERA Alternate UI

Enter login

Password

☐ Remember me

Sign in

AltUI, amg0

Step2:

VERA AltUI


VERA AltUI

Détails

VERA AltUI

Alexis

www.amg0.890m.com/VeraloginAction.php?altui-login-name=amg1&altui-login-pwd=Clem0006tine%20



Smarter Home Control

Remote Login to VERA Alternate UI

Click on the device you want to reach

InternalIP	Platform	Firmware	Mac Address	Relay
192.168.1.16	Sercomm%20NA301 &#x2013; %20Vera	1.7.961	08:00:27:00:00:00	vera-us-oem-relay31.mios.com

Toggle Details

AltUI, amg0


Home mode selection

VERA AltUI

mios/tpx800 (svn)

First user

192.168.1.16/port\_3480/data\_request?id=lr\_ALTUI\_Handler&command=home



Rooms

Devices

Scenes

More...

Welcome to VERA Alternate UI





This is a project under work, more to come.

Home

Away

Night

Vacation



AltUI, amg0

Room list and  
create/delete  
actions













VERA AltUI

192.168.1.16/port\_3480/data\_request?id=lr\_ALTUI\_Handler&command=ho

vera Rooms Devices Scenes Custom Pages Plugins More...

## Rooms

Room name... Create!

ID	Name	Actions
11	0-iPhones	
4	Bureau	
10	Ch Amis	
8	Ch Clementine	
7	Ch Parent	
5	Cine	
3	Cuisine	
13	Dressing	
6	Exterieur	
2	Hall Etage	
12	RFX	
1	Salon	



Scene list and execution

The screenshot displays the Vera! AIUI web interface in a browser. The address bar shows the URL `192.168.1.16/port_3480/data_request?id=lr_ALTUI_Handler&command=home#`. The interface features a sidebar on the left with a list of rooms: All, Salon, Hall Etage, Cuisine, Bureau, Cine, Exterieur, Ch Parent, Ch Clementine, Ch Amis, 0-iPhones, RFX, and Dressing. The main content area is titled "Scenes" and lists ten individual scenes, each with a "Run" button, a settings icon, and a timestamp indicating when the scene was last executed.

Scene Name	Scene ID	Last Execution
Alexis 1km	#57	2015/02/22 17:05:56
Alexis 3km	#56	2015/02/19 20:23:00
Battery is Low	#8	2015/01/31 18:52:28
CanalPlus	#53	2015/02/22 15:09:43
Carillon	#27	
Cine_PS3_OFF	#55	
Cine_PS3_On	#54	
Cine_TV_On	#58	2015/02/21 19:05:26
Cine_Tv_Off	#59	
Film-Regarder	#4	2015/02/21 21:33:46

## Device Main page

color coding of headers according to device state.

State icons & dynamic display icon logic completely reused from the Vera files JSON description files of vera plugins

The screenshot displays the Vera Home Automation web interface. The browser address bar shows the URL: `192.168.1.16/port_3480/data_request?id=lr_ALTUI_Handler&command=home#`. The interface features a sidebar on the left with a list of rooms: All, Salon, Hall Etage, Cuisine, Bureau, Cine, Exterieur, Ch Parent, Ch Clementine, Ch Amis, 0-iPhones, RFX, and Dressing. The main content area is titled 'Devices' and includes a search bar labeled 'Device Name'. Below the search bar, there is a grid of device cards. Each card displays the device name, a status icon (e.g., a green dot for 'ON' or a light bulb for 'OFF'), and a control toggle. The devices are organized into rows and columns, with some cards showing additional information like distance (e.g., '0.026 Km') or temperature (e.g., '19°C'). The interface uses color coding for headers and icons to represent different device states.

Tooltips with  
device  
attributes

## Devices

ZWave



Prise Groupe Clim



800 Watts

ON



Jardin



OFF



Bouteille



2 Watts

ON



Volet Clementine

\_Scene Controller



Caves Vin



187 w

Lamp



Jardin



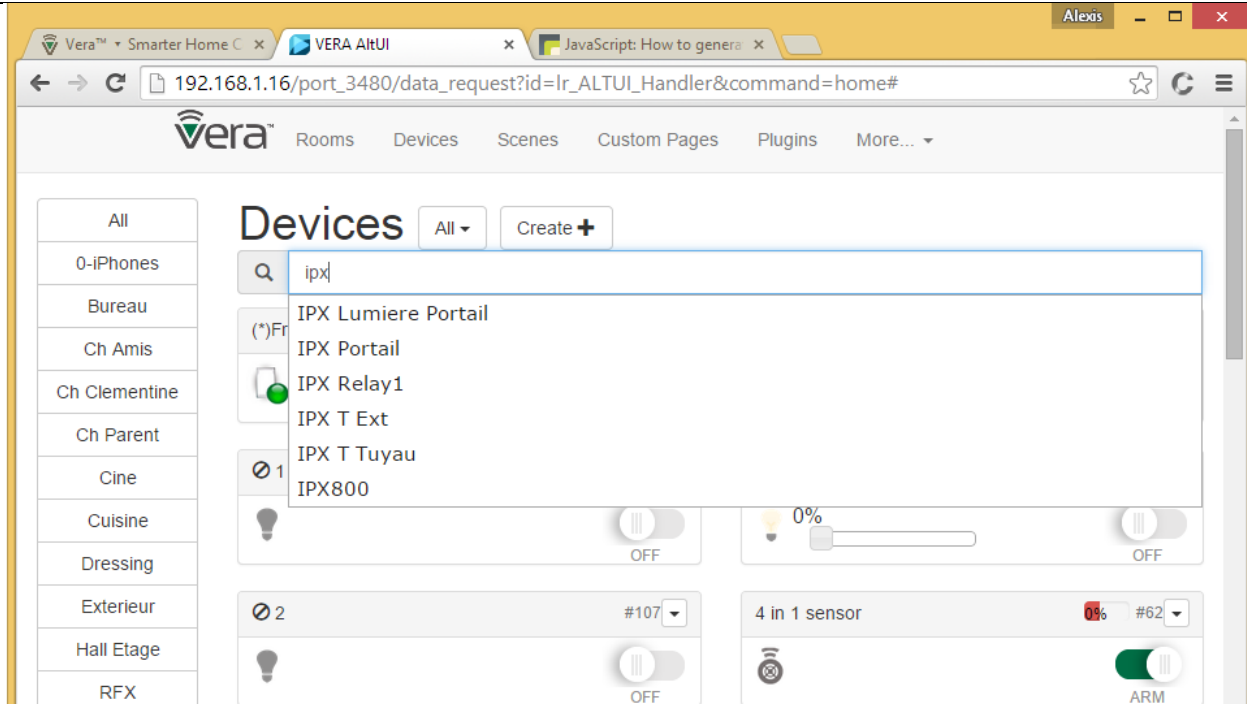
Volet



Store

```
id: 6
device_type: urn:schemas-upnp-org:device:BinaryLight:1
id_parent: 1
embedded: 0
disabled: 0
device_file: D_BinaryLight1.xml
impl_file:
model:
altid: 4
ip:
mac:
time_created: 1331907034
category_num: 3
subcategory_num: 0
room: 1
name: Lampadaire
onDashboard: 0
device_json: D_BinaryLight1.json
manufacturer: Everspring
local_udn: uuid:4d494342-5342-5645-0006-000002b03150
dirty: false
```

autocomplete  
filter box



Ability to  
filter on  
device  
Battery,  
  
Display of  
battery levels

Vera™ Smarter Home C x VERA AltUI x



192.168.1.16/port\_3480/data\_request?id=lr\_ALTUI\_Handler&command=home#

Vera™ Rooms Devices Scenes Custom Pages Plugins More... ▾


## Devices All ▾

☒ Invisible ☒ Battery Devices **Category:** All ▾



4 in 1 sensor 0% #62 ▾

  ARM


RFX Temp Ext Oregon 10% #71 ▾

 5.6°C


Motion Ext 50% #156 ▾

  ARM

RFX Temp TH1/31489 100% #110 ▾

 17.4°C

RFX Hum TH1/31489 100% #111 ▾

 48%

Click on  
device title to  
rename

- Exterieur
- Ch Parent
- Ch Clementine
- Ch Amis
- 0-iPhones
- RFX
- Dressing

159 Watts

ON

Lampadaire

0 Watts

OFF

Jardin

OFF

Jardin #2

OFF

1

Volet C

Jardin

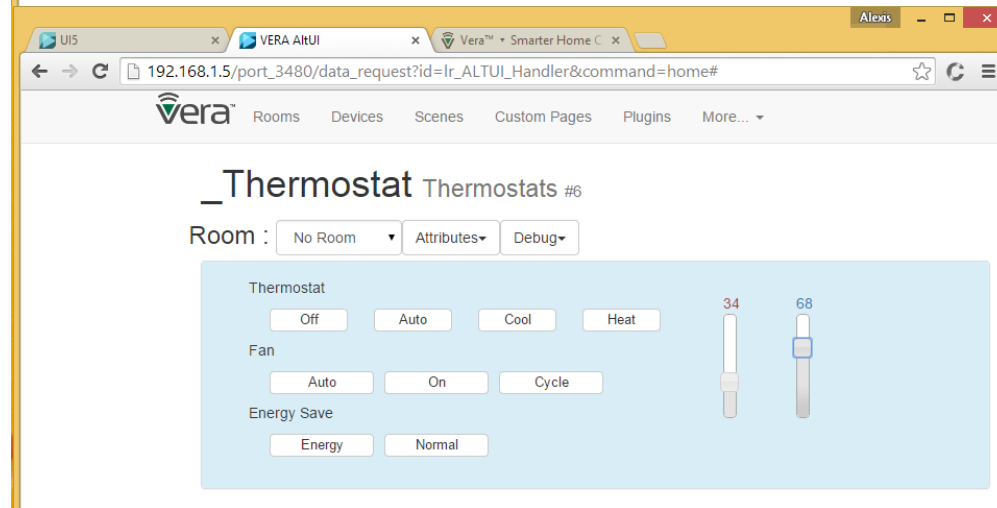
0

Bouteil

0

Device Control Panel screen emulate VERA and display the same control panel as the “flash” tab of the device on VERA

Buttons are functional and trigger UPNP actions.



Camera support.

Click on thumbnail to view

Or go into the device control panel

In REMOTE mode: get snapshot of images

In LOCAL mode: get **direct video** stream

VERA AltUI

192.168.1.16/port\_3480/data\_request?id=lr\_ALTUI\_Handler&command=home#

vera Rooms Devices Scenes Plugins Custom Pages More...

## Devices

Camera ▼ Create +

☒ Invisible ☐ Battery Devices **Category:** Camera ▼

Q Device Name

Camera PoE #58

Camera Wifi

Camera

Close Save changes



VERA AltUI

192.168.1.16/port\_3480/data\_request?id=lr\_ALTUI\_Handler&command=home#

vera

Rooms

Devices

Scenes

Plugins

Custom Pages

More...


## Camera PoE Cameras #58

Room : 

Salon

Attributes

Debug



Horizontal Patrol

Vertical Patrol

Stop

Camera preset positions

1

2

3

4

5

6

7

8

Optional display of device attributes &

In DEBUG mode only ( flag on the LUA device )  
We can see the Control tab json definition ( for debug )

Vera™ Smarter Home C x

VERA AltUI x

192.168.1.16/port\_3480/data\_request?id=lr\_ALTUI\_Handler&command=home#

vera

Rooms

Devices

Scenes

Custom Pages

Plugins

More...

IPX800 #125

Room : 

No Room

Attributes

Debug

id	125	device_type	urn:schemas-upnp-org:device:IPX800:1
room	0	id_parent	0
embedded	0	disabled	0
device_file	D_IPX800.xml	altid	
time_created	1416757981	plugin	7426
impl_file	I_IPX800.xml	name	IPX800
manufacturer	GCE Electronic	model	IPX800 v3
mac	00:04:A3:93:A2:7B	user	
pass		ip	192.168.1.10
device_json	D_IPX800_UI7.json	local_udn	uuid:4d494342-5342-5645-007d-000002b03150
dirty	false		

Firmware 3.05.46

Version v0.41

UNDEBUG

Refresh

IPX Names

{ "ControlGroup": "1", "ControlType": "label", "top": "1", "left": "0", "text\_align": "left", "Label": { "lang\_tag": "ipx\_firmware", "text": "Firmware" }, "Display": { "Top": 1, "Left": 10, "Width": 50, "Height": 20 } }

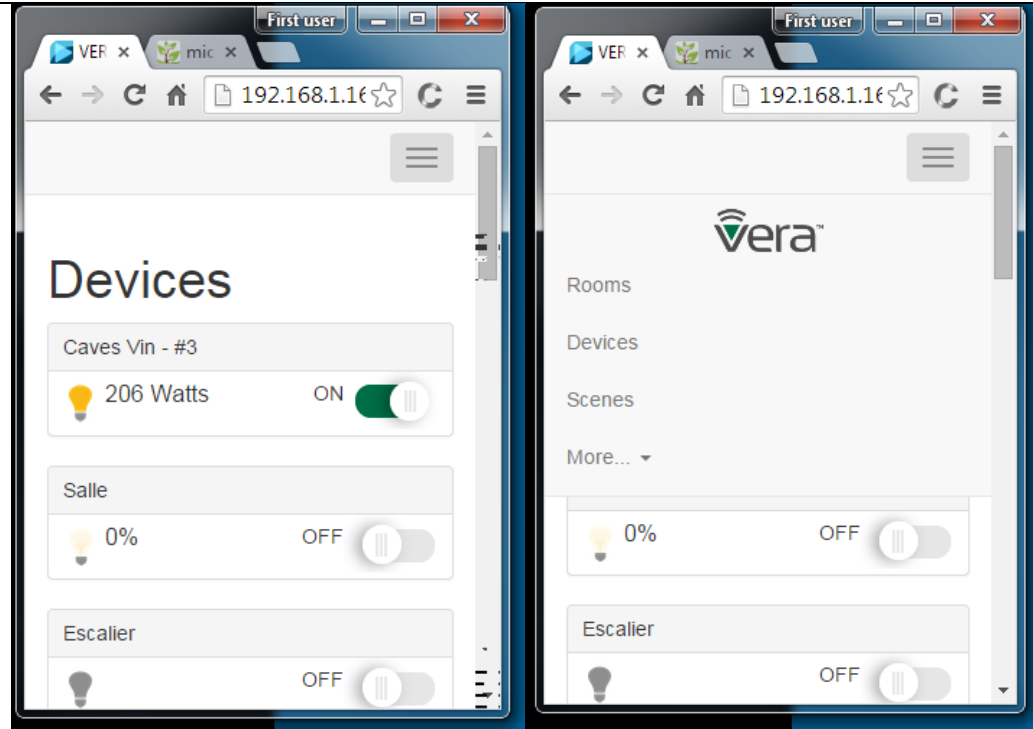
{ "ControlGroup": "1", "ControlType": "variable", "top": "1", "left": "1", "x": "2", "text\_align": "left", "Display": { "Service": "urn:upnp-org:serviceId:IPX8001", "Variable": "FirmwareVersion", "Top": 1, "Left": 80, "Width": 50, "Height": 20 } }

{ "ControlGroup": "1", "ControlType": "button", "top": "2", "left": "0", "Label": { "lang\_tag": "ipx\_refresh", "text": "Refresh" }, "Display": { "Service": "urn:upnp-org:serviceId:IPX8001", "Variable": "Present", "Value": "1", "Top": 80, "Left": 50, "Width": 75, "Height": 20 }, "Command": { "Service": "urn:upnp-org:serviceId:IPX8001", "Action": "Refresh", "Parameters": [] } }

{ "ControlGroup": "1", "ControlType": "button", "top": "2", "left": "1", "Label": { "lang\_tag": "ipx\_getnames", "text": "IPX Names" }, "Dis

Fully  
Responsive  
design that  
works on iPad  
or even  
iPhone 4S  
small screen

On iPad for  
instance, it  
adds columns  
when you  
rotate the  
iPad



Device variables presented. Timestamp presented as dates

All

Salon

Hall Etage

Cuisine

Bureau

Cine

Exterieur

Ch Parent

Ch Clementine

Ch Amis

0-iPhones

RFX

Dressing

ZWave

Prise

Jardin

Bouteille

Volet

Vacances

Exterieur

World

VERA AltUI

CSS - Bootstrap

192.168.1.16/port\_3480/data\_request?id=lr\_ALTUI\_Handler&command=home#

Bouteille #24 - Variables

Variable	Value
AllRoutesFailed	0
AssociationNum	0
AssociationSet	
AutoRoute	0-5,2-15,6-15,3-19
Capabilities	210,148,0,3,16,1,L,R,B,[37,39,114,115,117,134,
CommFailure	0
CommFailureTime	0
Configured	1
ConfiguredAssoc	
ConfiguredName	
ConfiguredVariable	
ConfiguredWakeupInterval	
FirstConfigured	28/4/2012 14:25:41
Health	
HealthDate	30/12/2014 21:37:02
LastReset	0
LastRouteUpdate	1/2/2015 17:04:49
LastUpdate	31/1/2015 16:59:25
Log	2,2,2,1422826200,1
ManufacturerInfo	96,4,1
MeterScale	
MeterType	
ModeSetting	1;;2;;3;;4;
MultiChCapabilities	
MultiChEndpoint	

jquery.ui.touch-punch...js

Afficher tous les téléchargements...

Edit device variable by click into , then click out

Smarter Home C x VERA AltUI x CSS - Bootstrap x .on() | jQuery API Docume x

192.168.1.16/port\_3480/data\_request?id=lr\_ALTUI\_Handler&command=home#

vera Rooms Devices Scenes Custom Pages Plugins More...

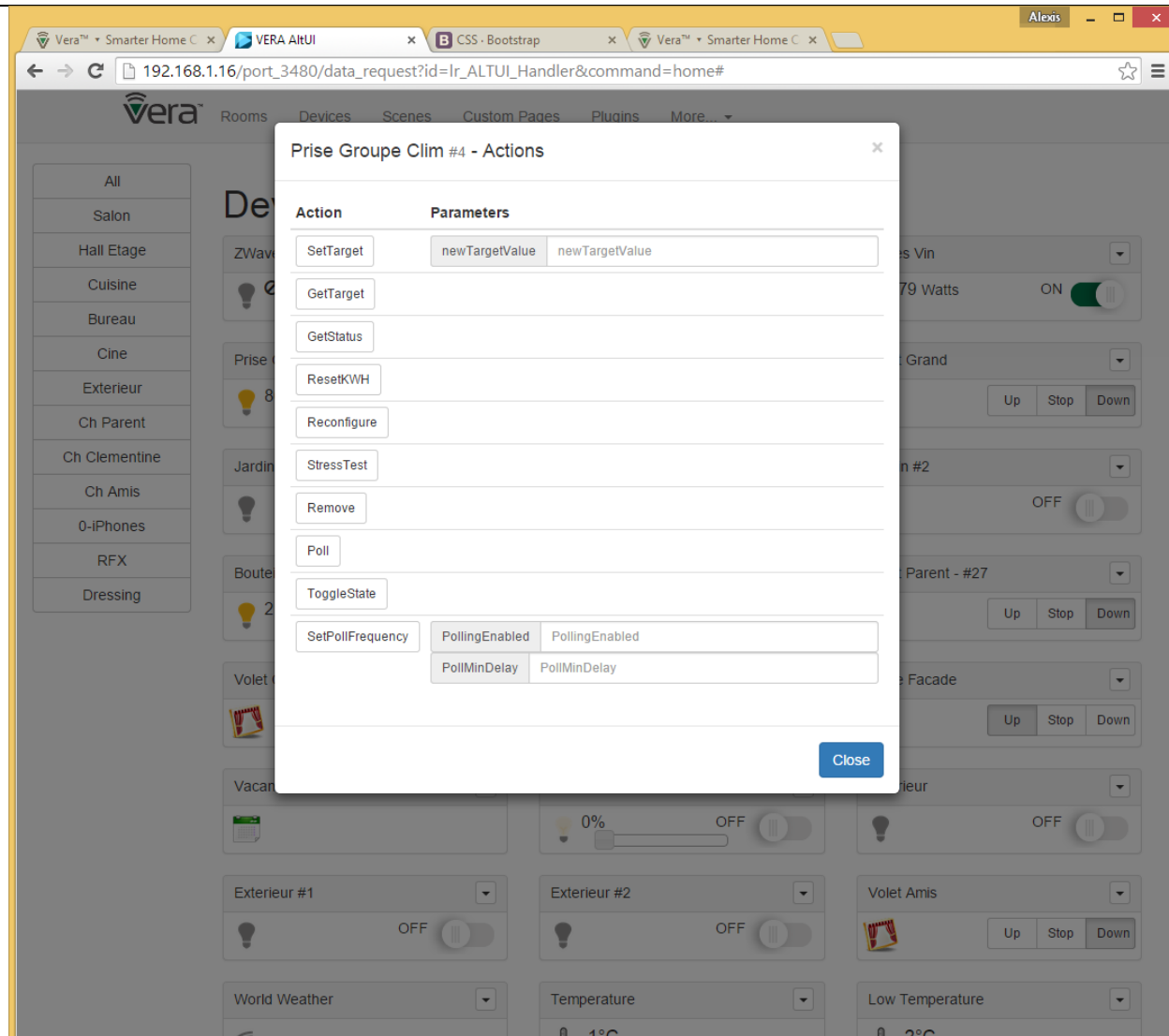
4 in 1 sensor (temp #63 - Variables

Variable	Value
ArmedTripped	1
CurrentTemperature	<input type="text" value="19"/>
LastTrip	2013/08/10 13:28:13
ManufacturerInfo	0,0,0
SensorMIScale	3
SensorMIType	1
Tripped	1
VariablesGet	

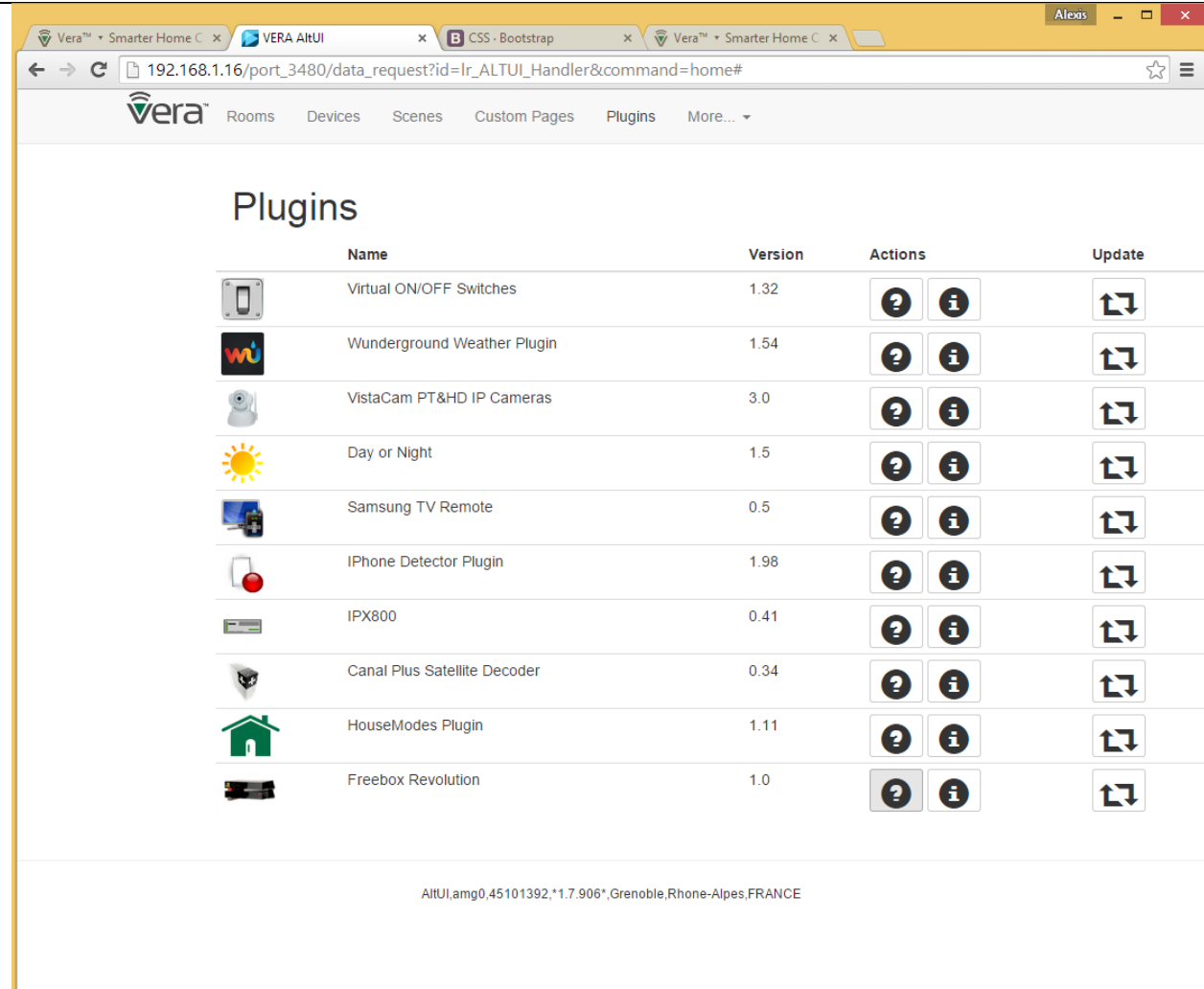
Close Save changes

Routeille #24 CPLUS #140 Caisson Basse #105 Cam PoF









































Device UPNP  
action &  
parameters  
callable from  
the user  
interface.  
UPnp  
definitions  
dynamically  
read from the  
D\_ & S\_xx  
files



Installed  
Plugin screen  
and Update  
with a button



The screenshot shows the Vera UI Plugins page in a web browser. The browser's address bar displays the URL `192.168.1.16/port_3480/data_request?id=lr_ALTUI_Handler&command=home#`. The page features a navigation bar with links for Rooms, Devices, Scenes, Custom Pages, Plugins, and More... The main heading is "Plugins". Below it is a table listing various plugins with their icons, names, versions, and action buttons. The table has four columns: Name, Version, Actions, and Update. Each plugin row includes an icon, the plugin name, its version number, and two buttons in the Actions column (a question mark and an 'i' icon) and an Update button (a circular arrow icon).

	Name	Version	Actions	Update
	Virtual ON/OFF Switches	1.32	 	
	Wunderground Weather Plugin	1.54	 	
	VistaCam PT&HD IP Cameras	3.0	 	
	Day or Night	1.5	 	
	Samsung TV Remote	0.5	 	
	iPhone Detector Plugin	1.98	 	
	IPX800	0.41	 	
	Canal Plus Satellite Decoder	0.34	 	
	HouseModes Plugin	1.11	 	
	Freebox Revolution	1.0	 	

AltUI,amg0,45101392,\*1.7.906\*,Grenoble,Rhone-Alpes,FRANCE

Click on “i” directly brings to Apps Store

Click on “update” triggers an update of the plugin from the apps store

Click on “?” opens the developer HELP page

Message Box  
for messages.

Badge for  
repeated  
messages.

Vera™ · Smarter Home C · x

VERA AltUI

CSS · Bootstrap

Vera™ · Smarter Home C · x

Alexa

192.168.1.16/port\_3480/data\_request?id=lr\_ALTUI\_Handler&command=home#

vera™

Rooms

Devices

Scenes

Custom Pages

Plugins

More...

All

Salon

Hall Etage

Cuisine

Bureau

Cine

Exterieur

Ch Parent

Ch Clementine

Ch Amis

0-iPhones

RFX

Dressing

Devices

#7:Bouteille:SUCCESS! Transmit was OK

#6:Sapin:SUCCESS! Transmit was OK

Lampadaire

0 Watts

OFF

Store Facade

Up

Stop

Down

Cam Wifi

Unarmed

Ampli Onkyo

83 Watts

ON

Bouteille

2 Watts

ON

Camera Wifi

Cam PoE

Unarmed

Caisson Basse

10 Watts

ON

Store Cote

Up

Stop

Down

Camera PoE

Samsung TV Remote

Sapin

0 Watts

ON

AltUI,amg0,45101392,\*1.7.906\*,Grenoble,Rhone-Alpes,FRANCE




Example of  
“grouped”  
error  
message with  
a badge  
number while  
LUA is  
restarted for  
instance

The screenshot displays the Vera UI interface in a web browser. The address bar shows the URL `192.168.1.16/port_3480/data_request?id=lr_ALTUI_Handler&command=home#`. The page features a navigation menu on the left with categories like All, Salon, Hall Etage, Cuisine, Bureau, Cine, Extérieur, Ch Parent, Ch Clementine, Ch Amis, 0-iPhones, RFX, and Dressing. The main content area is titled 'Devices' and contains a grid of device controls. A red error banner at the top of the Devices section reads '5 Request failed: error'. The devices shown include Lampadaire (0 Watts, OFF), Bouteille (2 Watts, ON), Store Cote, Store Facade, Camera Wifi, Camera PoE, Cam Wifi (Unarmed), and Cam PoE (Unarmed). On the right side, the Developer Tools panel is open, showing the Network tab with several data requests to `/port_3480`.

Modify Lua  
Startup editor

VERA AltUI

192.168.1.16/port\_3480/data\_request?id=lr\_ALTUI\_Handler&command=home#

RoomsDevicesScenesCustom PagesPluginsMore...

# LUA Startup

**Lua startup code:**

```
MYIP = nil
-- luup.attr_set("invisible","",20)

--- DEVICES
DEVID_CAVE = 3
DEVID_CLIM = 4
DEVID_WND_BUREAUPETIT = 26
DEVID_WND_STORECOTE = 29
DEVID_WND_STOREFACADE = 30
DEVID_VACATION = 31
DEVID_MOTION_ENTREE = 156
DEVID_MOTION_4I1 = 62
DEVID_LIGHT_LAMPADAIRE = 6
DEVID_LIGHT_BOUTEILLE = 24
DEVID_LIGHT_CINE = 32
DEVID_LIGHT_JARDIN = 20
DEVID_LIGHT_ENTREE = 41
DEVID_LIGHT_ESCALIER = 51
DEVID_WEATHER = 45
DEVID_TEMP_EXT = 46
DEVID_TEMP_INT = 63
```

Submit

Lua test code

The screenshot shows a web browser window with the address bar displaying `192.168.1.16/port_3480/data_request?id=lr_ALTUI_Handler&command=home#`. The page title is "LUA Code Test". A green notification bar at the top states "Test code succeeded". Below this, a message explains: "This test code will succeed if it is syntactically correct and does not return false. an error in the code or a return false will trigger a failure". The section "Lua Test Code:" contains a text area with the code `return true`. A "Submit" button is located below the text area.

Vera™ Smarter Home C x VERA AltUI x

192.168.1.16/port\_3480/data\_request?id=lr\_ALTUI\_Handler&command=home#

Vera™ Rooms Devices Scenes Custom Pages Plugins More... ▾

## LUA Code Test

Test code succeeded

This test code will succeed if it is syntactically correct and does not return false. an error in the code or a return false will trigger a failure

**Lua Test Code:**

```
return true
```

Submit

## Edit Scene #1

test

#1

Run



NaN

Room : No Room ▼

Trigger Submit

<input checked="" type="checkbox"/>	blw 2	(*)iPhone de Alexis (#5)	Distance goes below	Distance < 2	
<input checked="" type="checkbox"/>	abv 35	_Thermostat (#8)	Ambient temperature goes above	CurrentTemperature > 35	

Timers Submit

<input checked="" type="checkbox"/>	Interval	interval: 3h	
<input checked="" type="checkbox"/>	Day of Week	day of week: 2,4 h:m:s= [7:0:0]	
<input checked="" type="checkbox"/>	Absolute	absolute:	
<input checked="" type="checkbox"/>	Day of Month	day of month: 5 h:m:s= [-1:0:0R]	
<input checked="" type="checkbox"/>	Interval	interval: 2h	

Actions Submit

0 sec	(*)iPhone de Alexis (#5)	ForceRefresh (PresentStatus: 0)	
	ALTUI (#4)	Refresh ()	
30 sec	(*)iPhone de Alexis (#5)	SetPresent (newPresentStatus: 0)	

## Lua

Lua scene code: Submit

enter code here

Submit

Lua event trigger ( does not exist any more in UI7 but it works fine ) so I added it back with a test code button right there

The screenshot displays the Vera UI interface for configuring a trigger. At the top, a 'Trigger' dropdown is set to 'Submit'. Below it, a checkbox is checked, and the trigger is named 'Below 1km' for the device '(\*)iPhone de Alexis (#94)'. The condition is 'Distance goes below' with a value of 'Distance < 1'. A '⚡ Lua' button is circled in orange, with a blue arrow pointing to the 'Lua Editor' dialog box. The dialog box has a title bar 'Lua Editor' and a close button. Inside, the 'Lua Code' section contains a text area with the placeholder 'enter code here'. At the bottom of the dialog are 'Close', 'Test Code', and 'Save changes' buttons. Below the dialog, the 'Actions' section is visible with a 'Submit' button. Under '0 sec', the 'Lua' section shows a 'Lua scene code:' field with a 'Submit' button. A code preview is shown at the bottom:

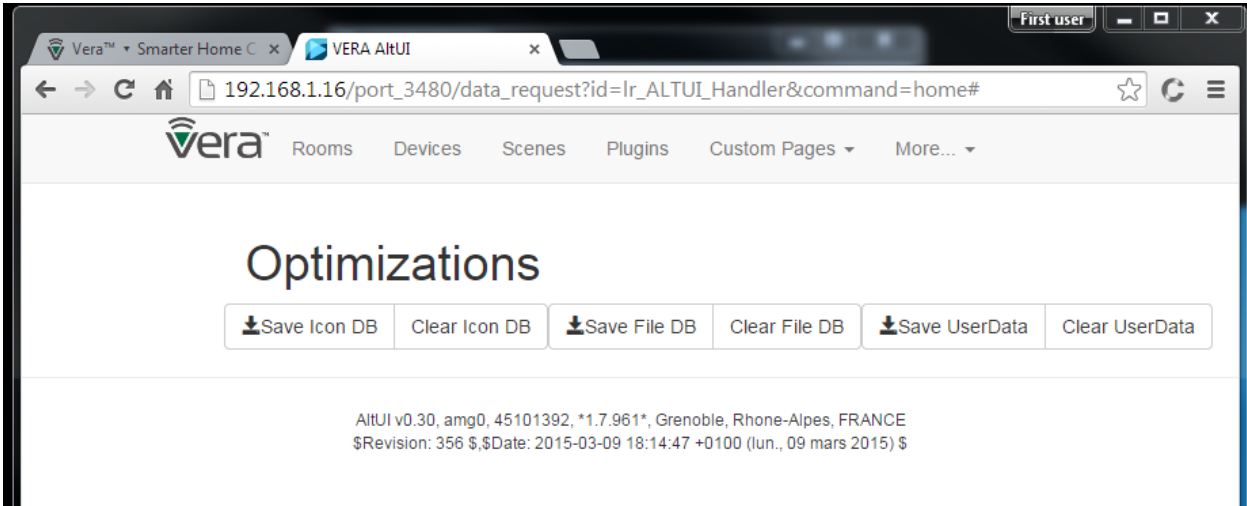
```
--- message
local current = os.time()
local message = "\nBelow 1km, \n Heure:" .. os.date("%c", current) .. "\n"
```

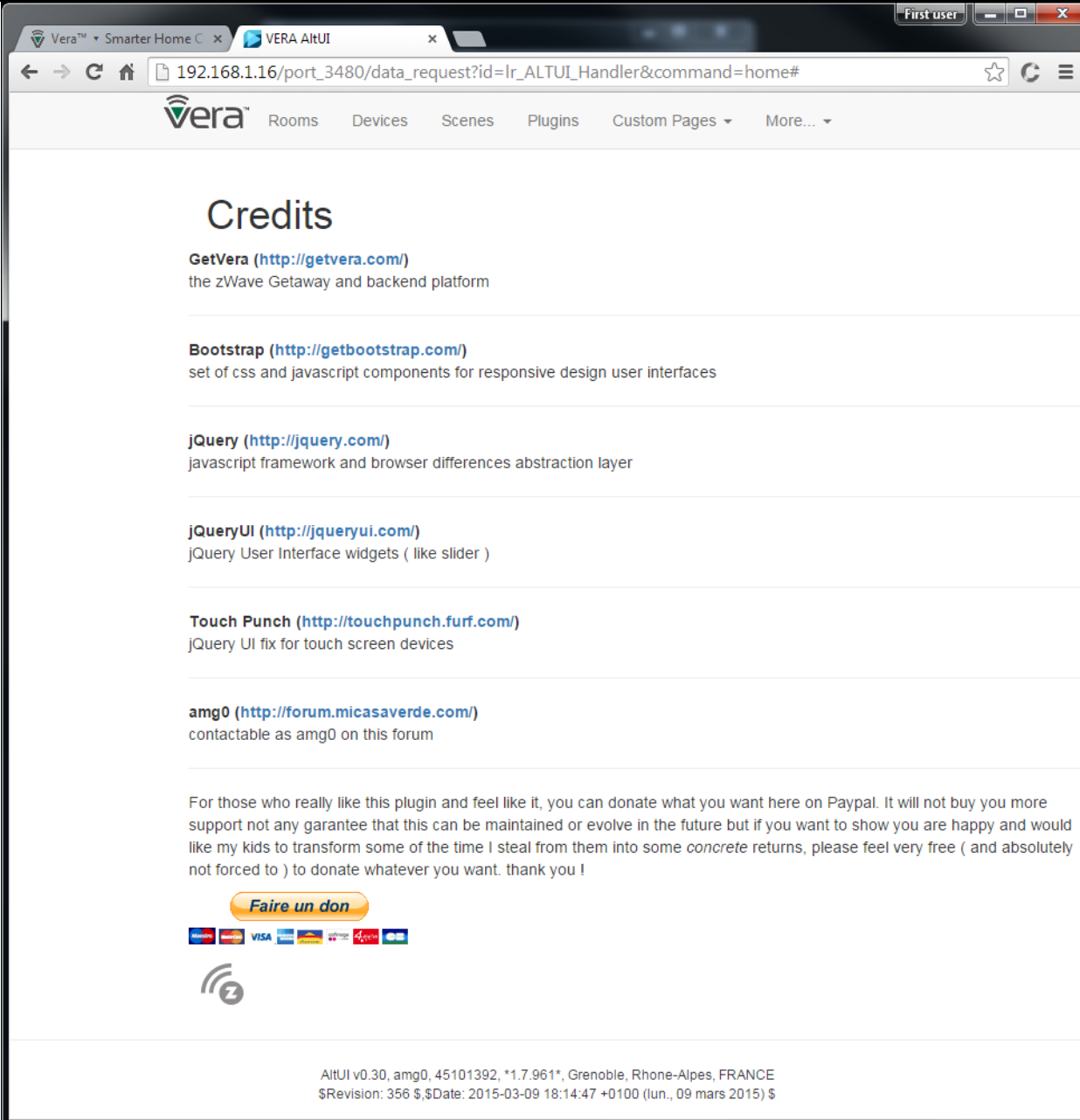


User  
controllable  
Cache

Cache for Icons ( in remote access, icons are delivered as data uri , base64 and can be cached by the app )

Cache for device pnp files ( D\_xx S\_xx ) to avoid reloading when not needed.

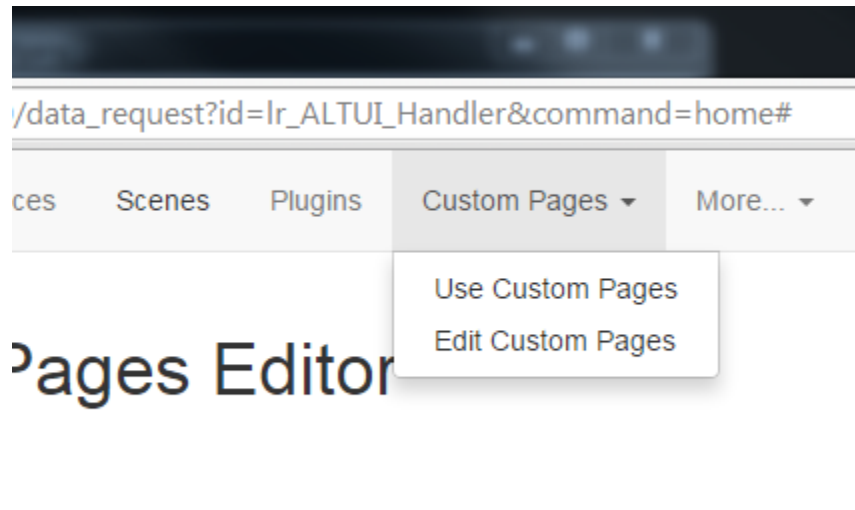
Cache for last user\_data to optimize useage from remote location.



Credits	 <p><b>Credits</b></p> <p><b>GetVera</b> (<a href="http://getvera.com/">http://getvera.com/</a>) the zWave Getaway and backend platform</p> <p><b>Bootstrap</b> (<a href="http://getbootstrap.com/">http://getbootstrap.com/</a>) set of css and javascript components for responsive design user interfaces</p> <p><b>jQuery</b> (<a href="http://jquery.com/">http://jquery.com/</a>) javascript framework and browser differences abstraction layer</p> <p><b>jQueryUI</b> (<a href="http://jqueryui.com/">http://jqueryui.com/</a>) jQuery User Interface widgets ( like slider )</p> <p><b>Touch Punch</b> (<a href="http://touchpunch.furf.com/">http://touchpunch.furf.com/</a>) jQuery UI fix for touch screen devices</p> <p><b>amg0</b> (<a href="http://forum.micasaverde.com/">http://forum.micasaverde.com/</a>) contactable as amg0 on this forum</p> <p>For those who really like this plugin and feel like it, you can donate what you want here on Paypal. It will not buy you more support not any guarantee that this can be maintained or evolve in the future but if you want to show you are happy and would like my kids to transform some of the time I steal from them into some <i>concrete</i> returns, please feel very free ( and absolutely not forced to ) to donate whatever you want. thank you !</p> <p><b>Faire un don</b></p> <p></p> <p></p> <p>AltUI v0.30, amg0, 45101392, *1.7.961*, Grenoble, Rhone-Alpes, FRANCE \$Revision: 356 \$,\$Date: 2015-03-09 18:14:47 +0100 (lun., 09 mars 2015) \$</p>
Plugins / Custom device	

# Custom Pages

The following below explains the concept around custom pages. You can basically create your own panels and retrieve these panels whenever you want. For this you have 2 new Menu commands



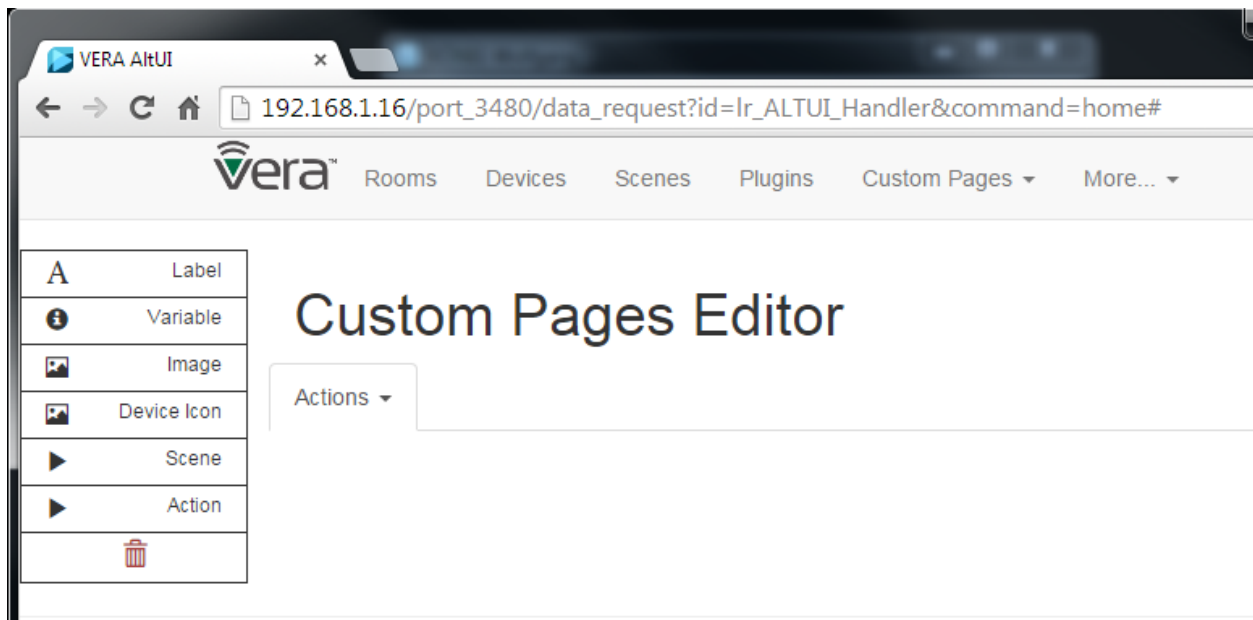
- Use Custom pages : just for readonly use of a custom panel you have built
- Edit Custom pages : to edit the panel.

The first time you go there, you will not see any custom pages as you have not created any yet. So let's start by going into Edit mode first.

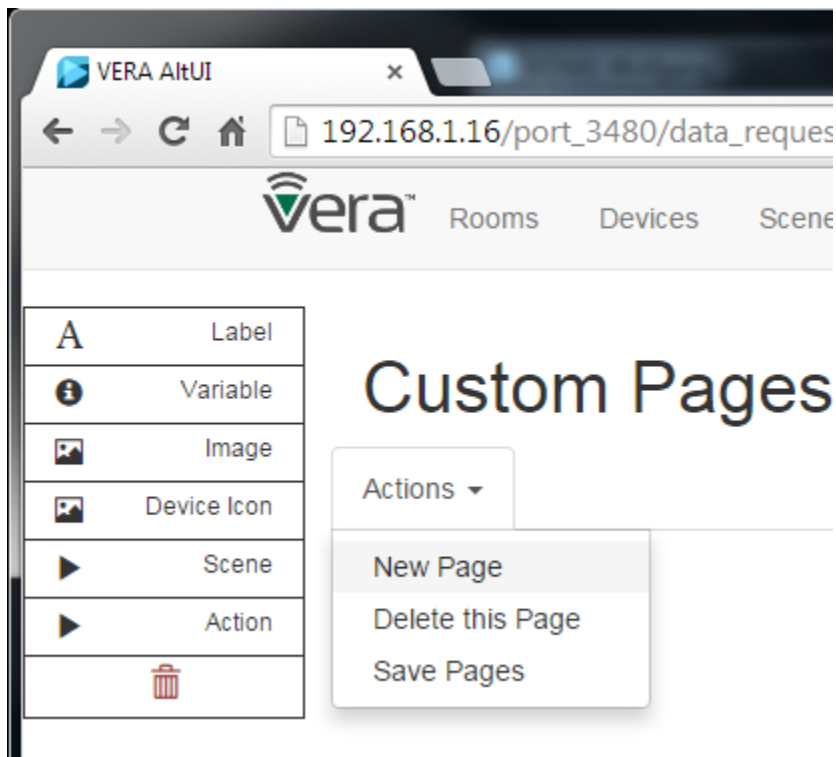
On the left, you have a list of tools in a toolbox. For now there are 3 tools:

- The Label one : to show a static label
- The Variable one : to display a current device variable value
- The trashcan : to delete a widget from a panel screen by drag and drop.



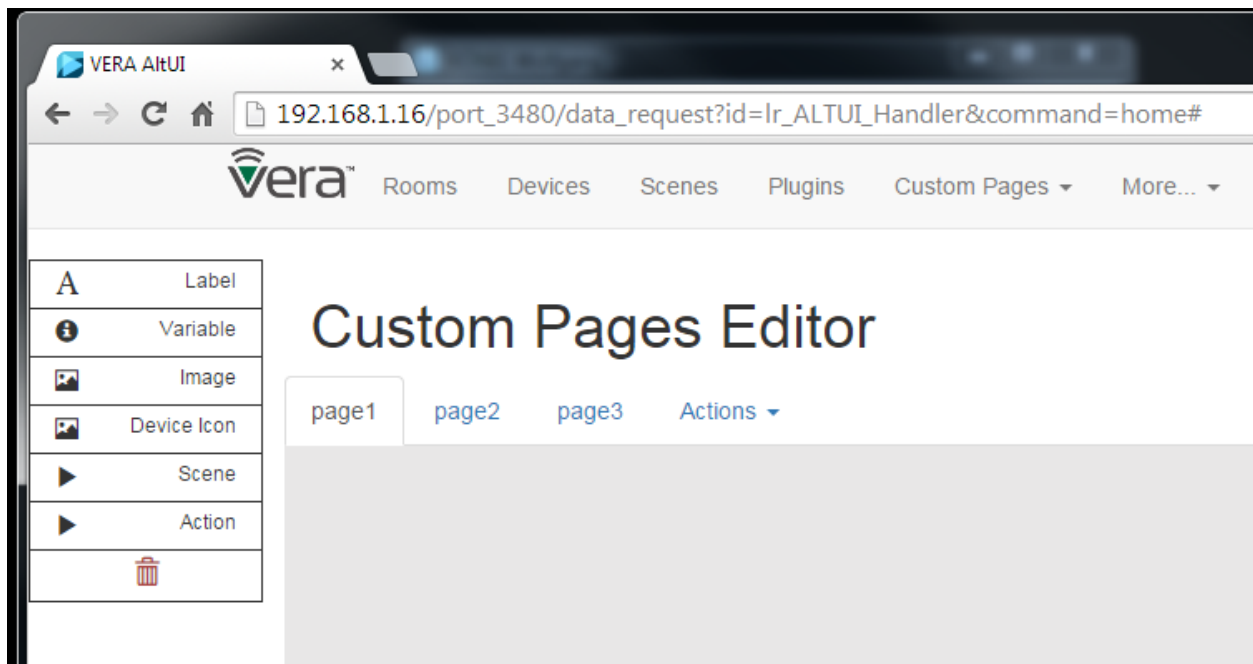


For now, you do not see any page , so let’s create one by going into the menu Actions.

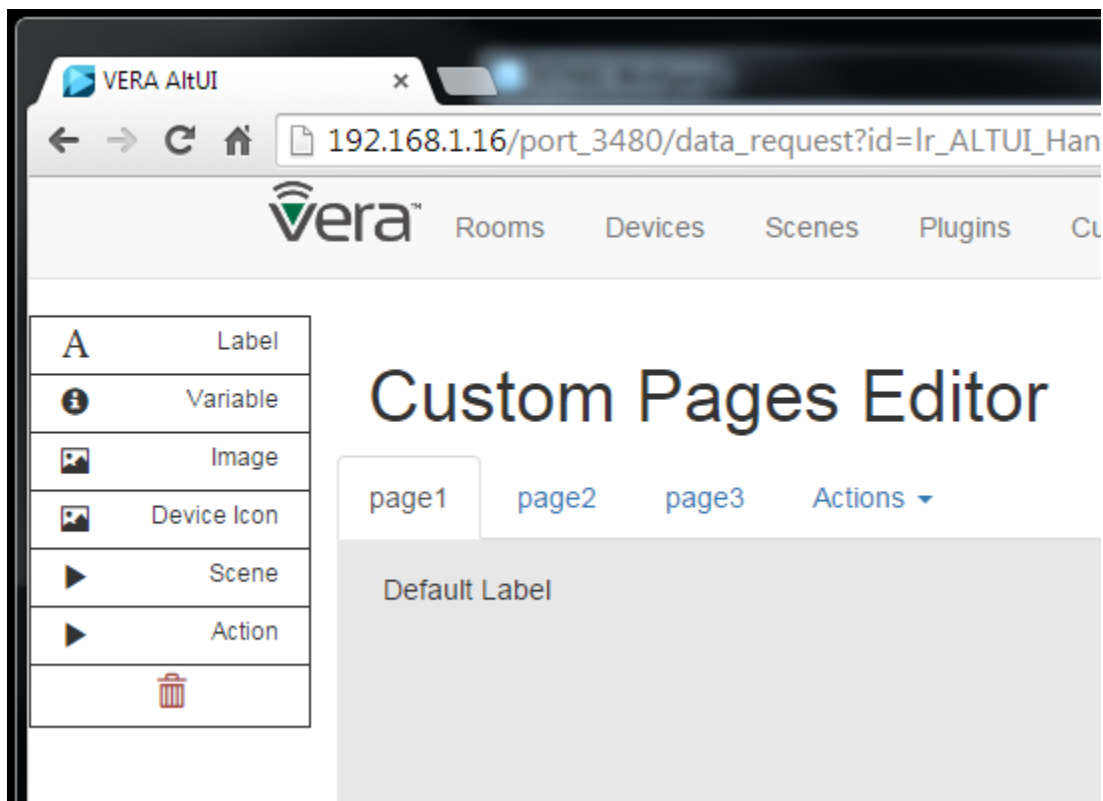


Click New page and your first page is created and is empty for now, but you see a grey canvas where you are going to position your controls.

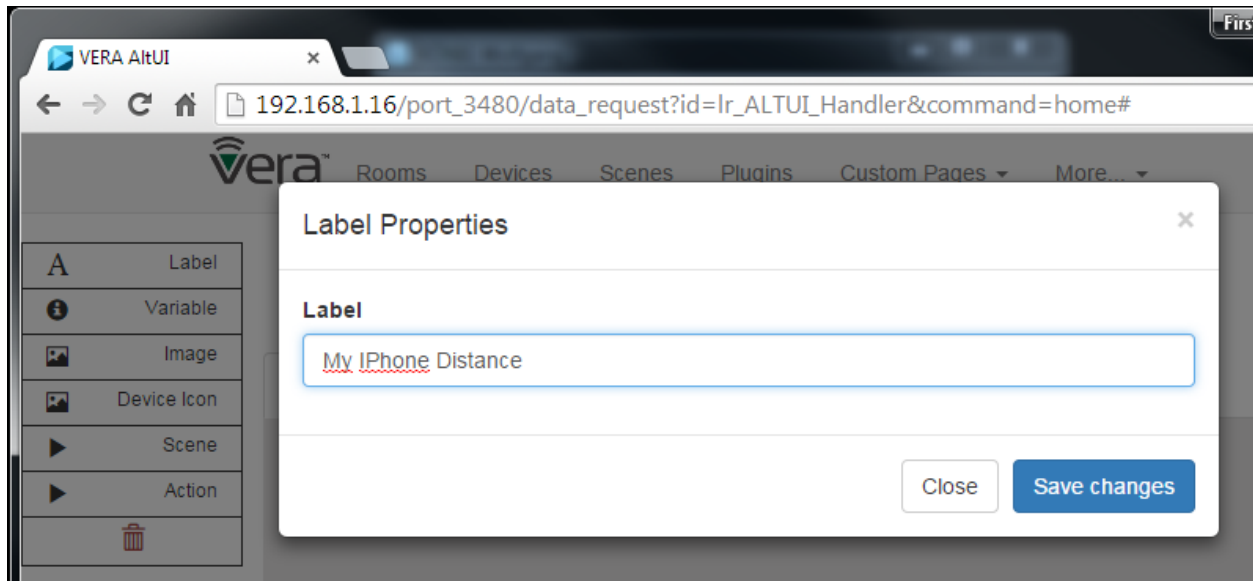
You can create several pages, they will be displayed as “Tabs” you can select to move from one page to the other.



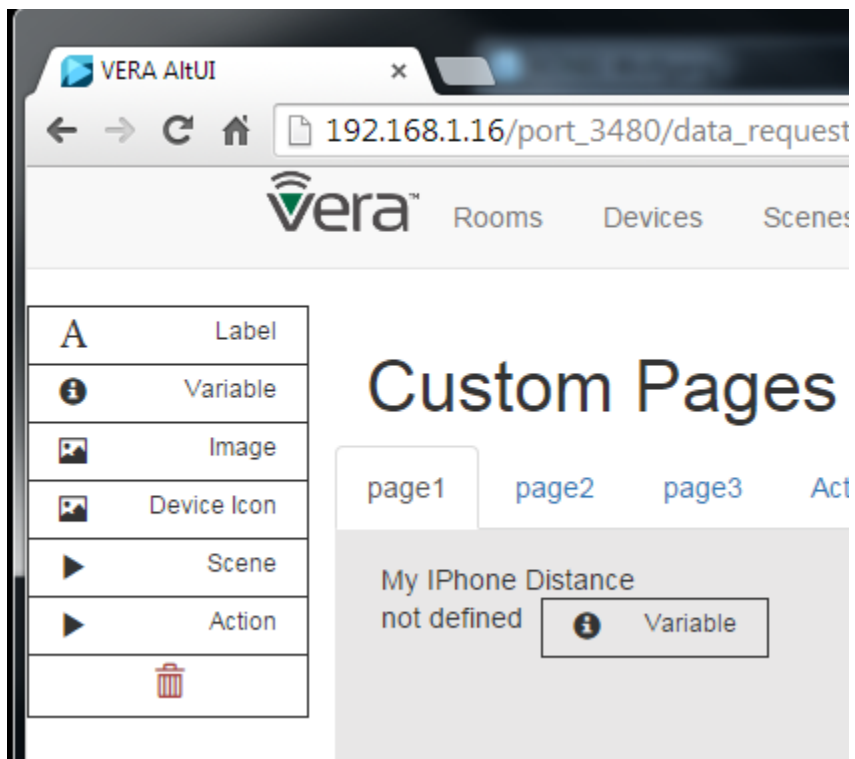
Now, let's position a few controls on the panel. I have an iPhoneLocator plugin in my Vera and I want to display the distance and the unit it is reporting. So you are going to select the first tool (the A for labels) and drag it into the canvas area. It will create a default label right at the position you left it.



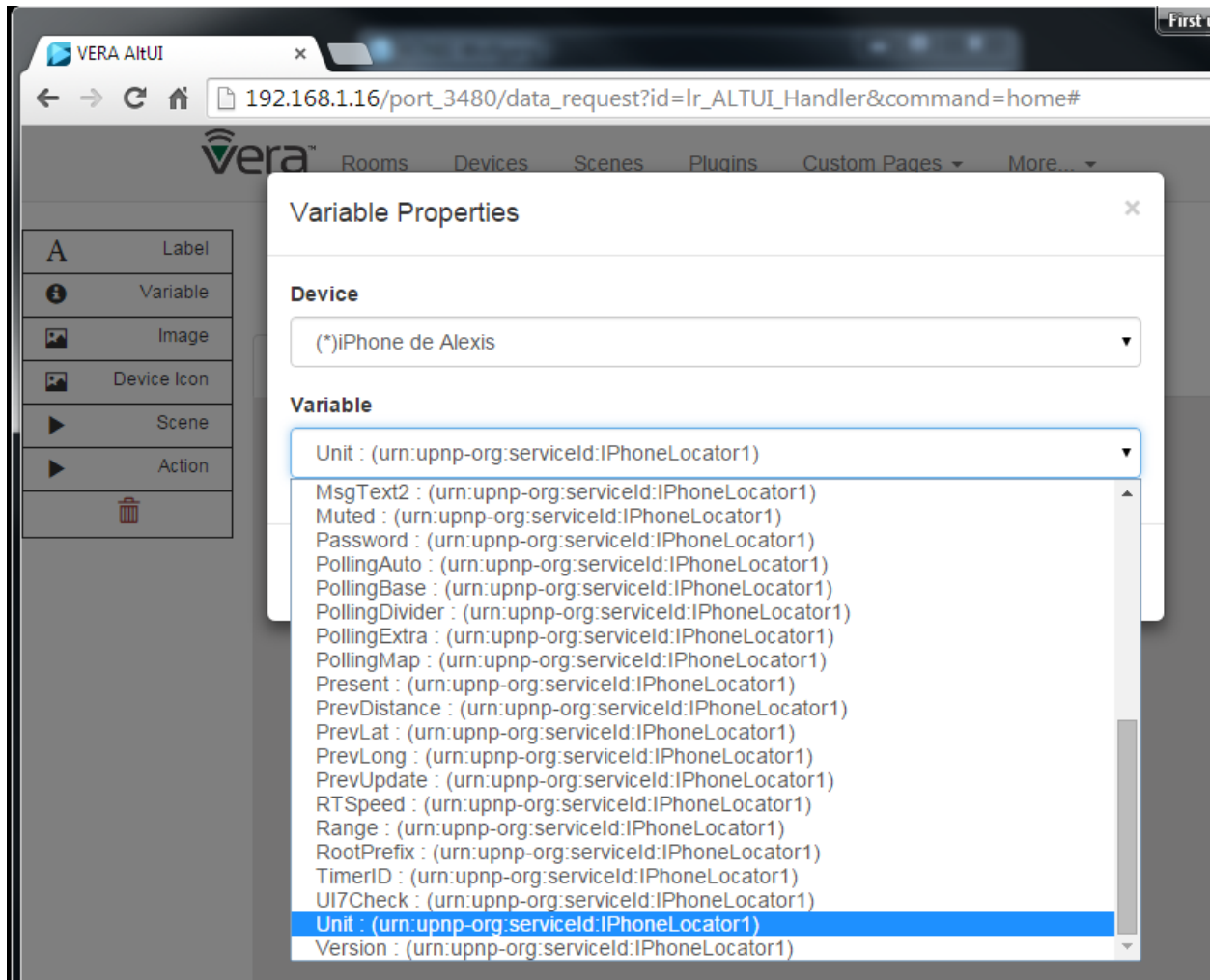
By clicking on it you can change this Default Label.



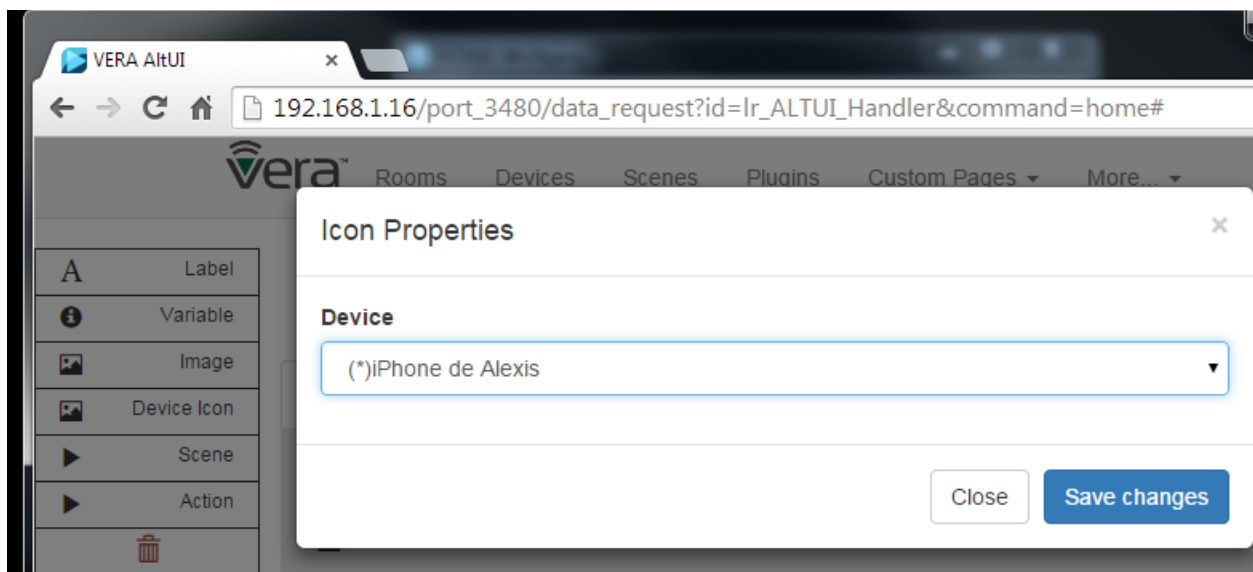
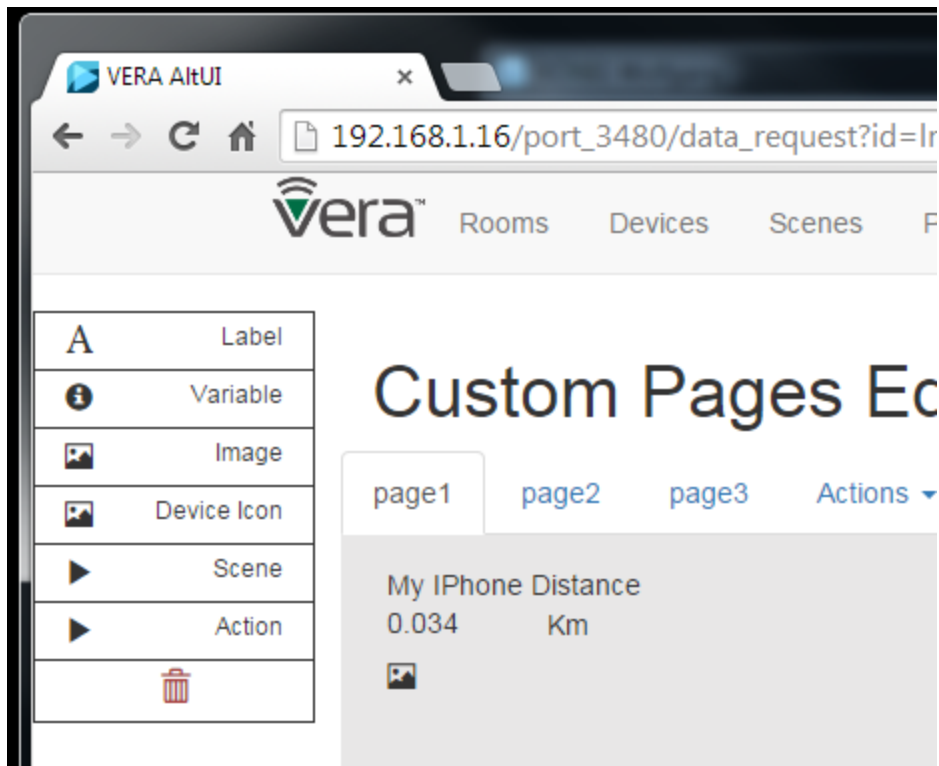
As expected the label has changed on the canvas. I now want to report a dynamic value coming from the device variable, I will use the second tool from the toolbox ( the I for Info, which is a variable ). I want the distance and the unit which are 2 different variables on this plugin so I will drag and drop 2 “Info” controls. You can move around a control after you have dropped it on the canva surface, just move them around as you want.



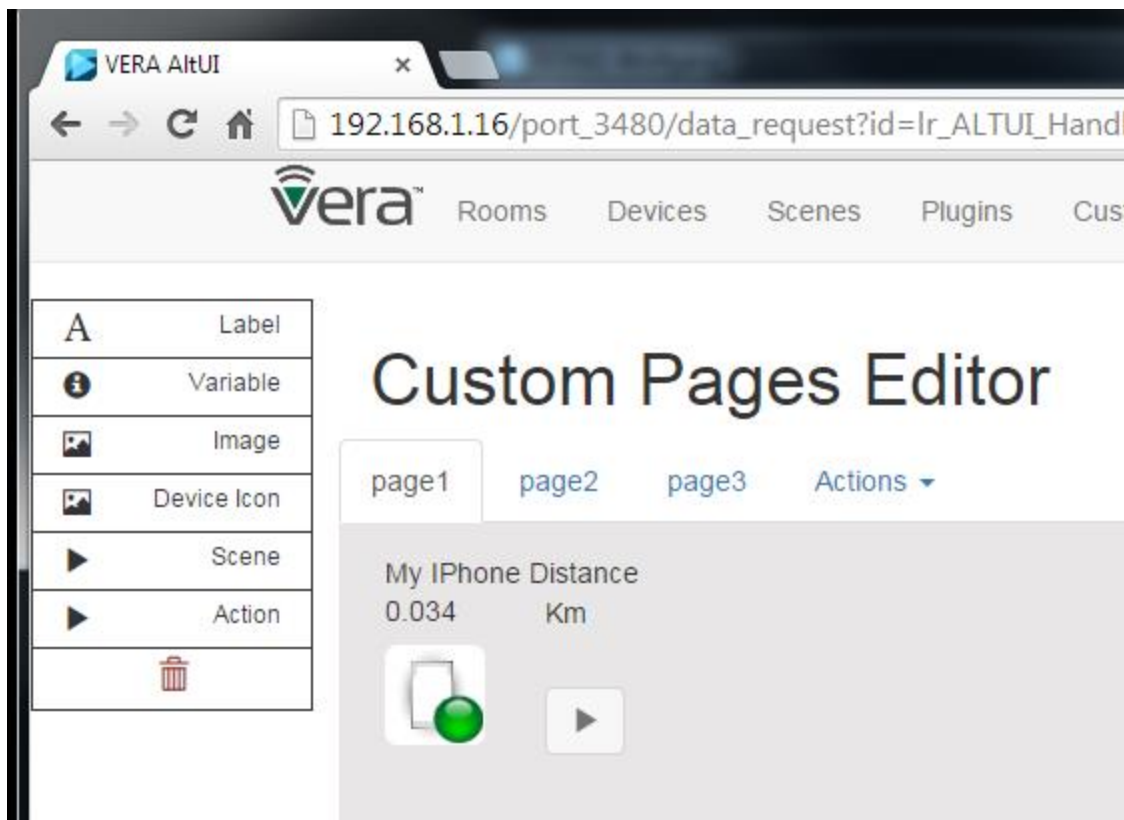
Double clicking on the variable, you can change the parameters so let's now select the right variables.



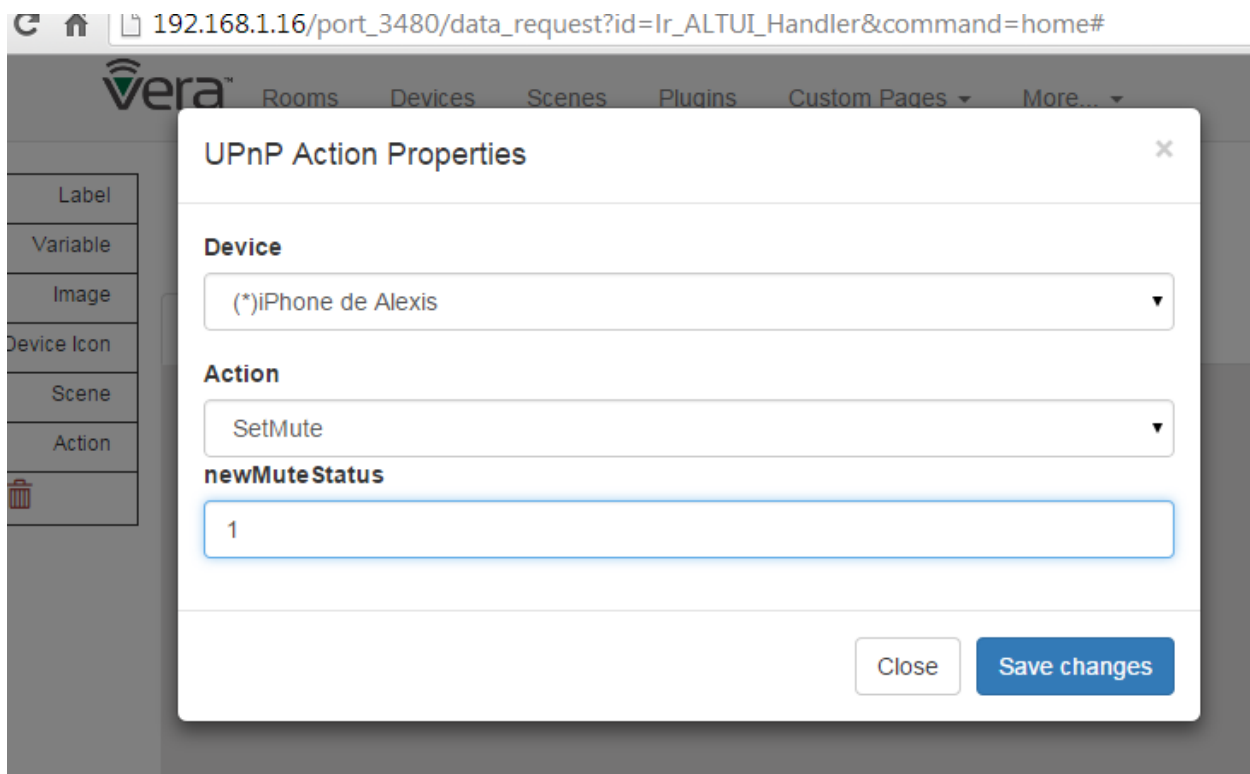
Let's add the icon of the device ( which will follow the dynamic states as defined per the plugin author )



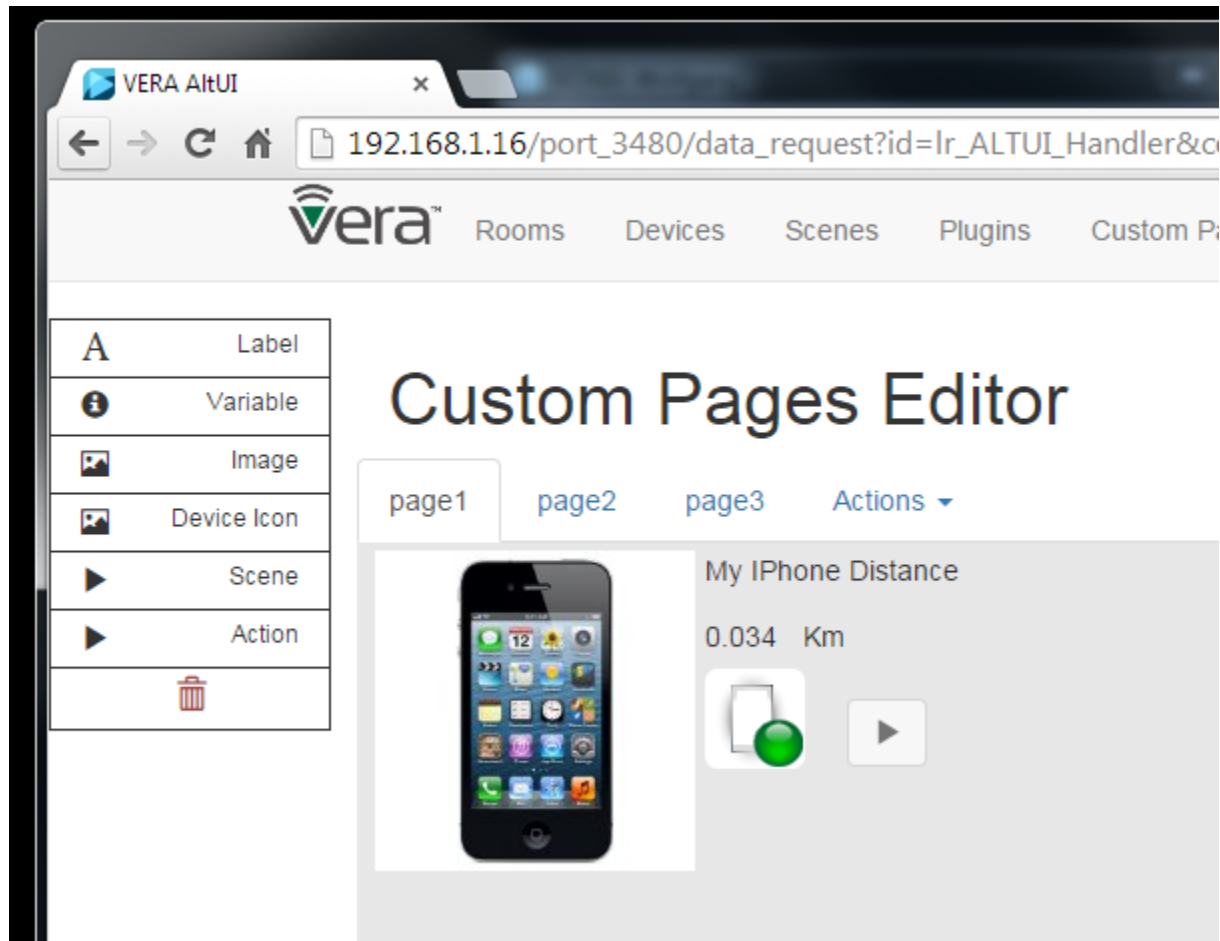
And Let's add a mute button.



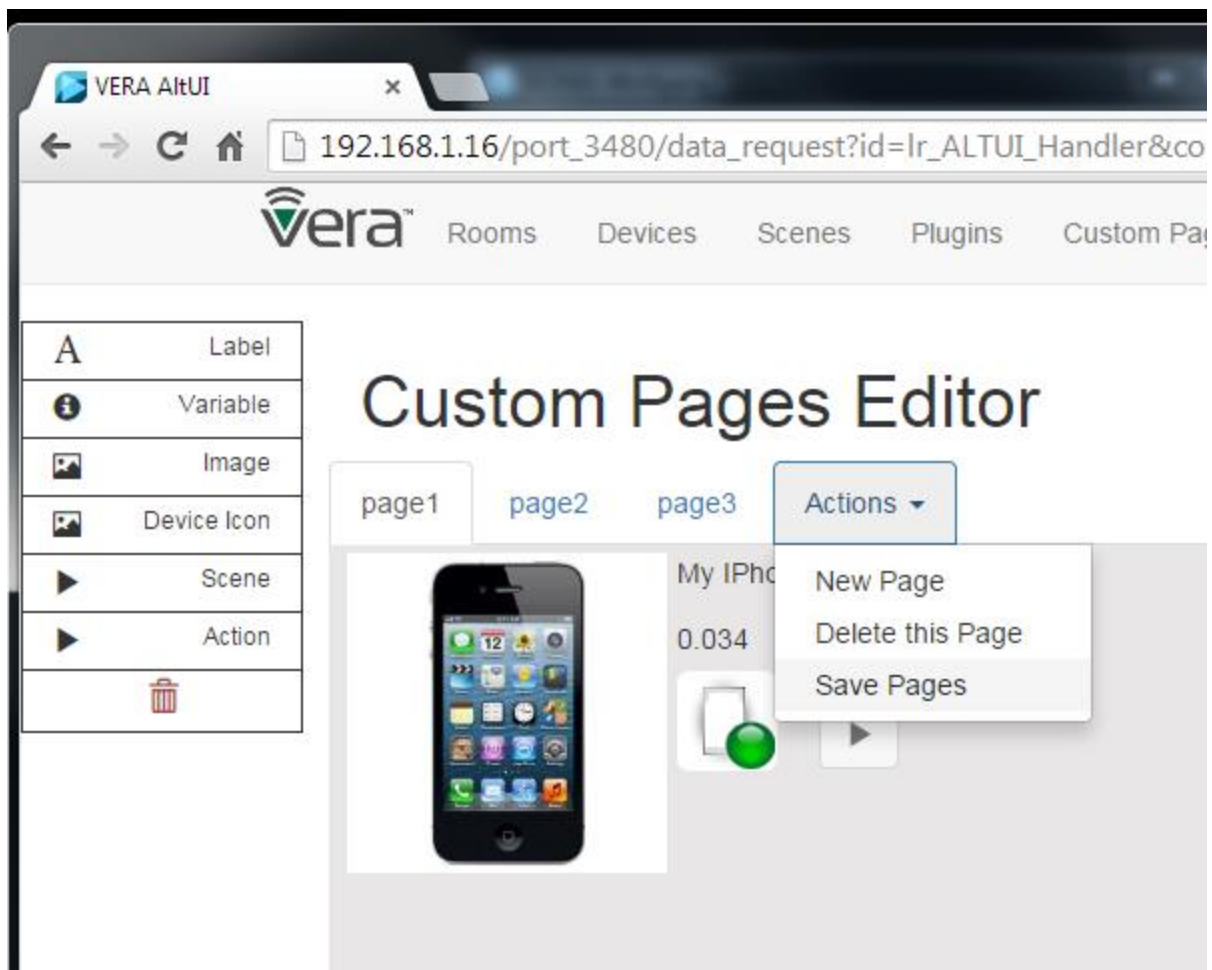
Which we need to configure to run the right UPnP action:



Et voila ( with a 3<sup>rd</sup> tool from the toolbox , image which can be any URL or data uri ( for embedded image) )



I now want to save it so that it can be persisted and reopened next time so I go into the Actions/Save menu.



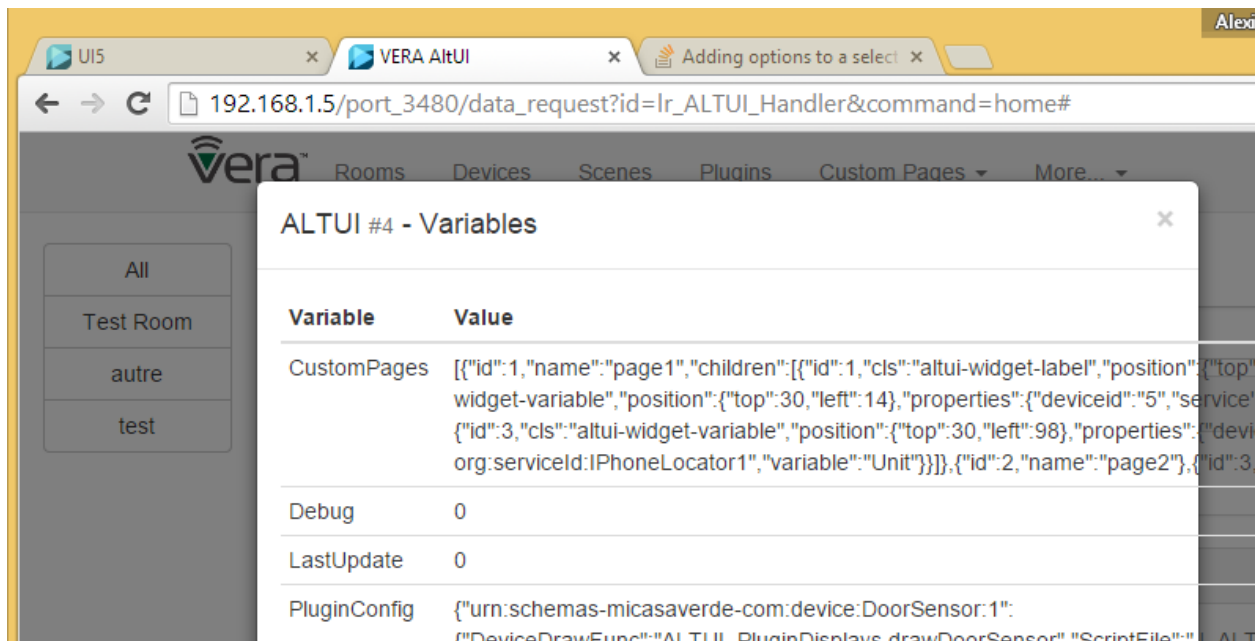
That is it , now the page is visible by the Custom Pages / “Use custom page” menu and you can close your browser and reopen it , it will still be there.

Now I can simply use it in read only mode and the button & icon are functional



All pages definitions are stored in the LUA plugin variable “CustomPages”, you can see it from ALTUI and copy paste in a JSON online viewer if you are interested



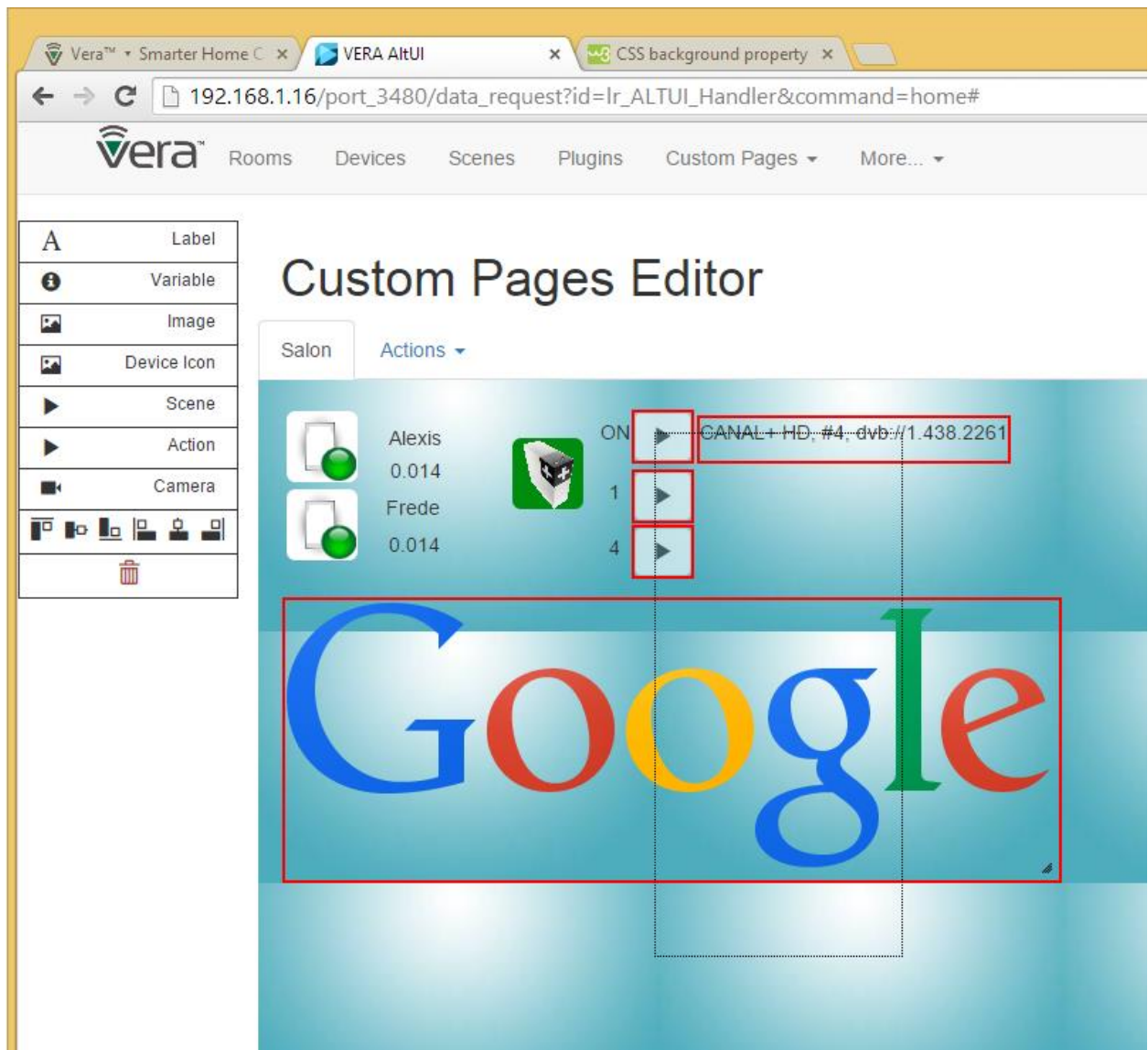


Other capabilities:

- Page Property menu items enables to:
  - Change a page name
  - Change a page background , any valid CSS3 background string is accepted. Solid color, grade, radiants, stripes, url('http://xxxx/image.png') are valid. See the syntax of **"background"** css property

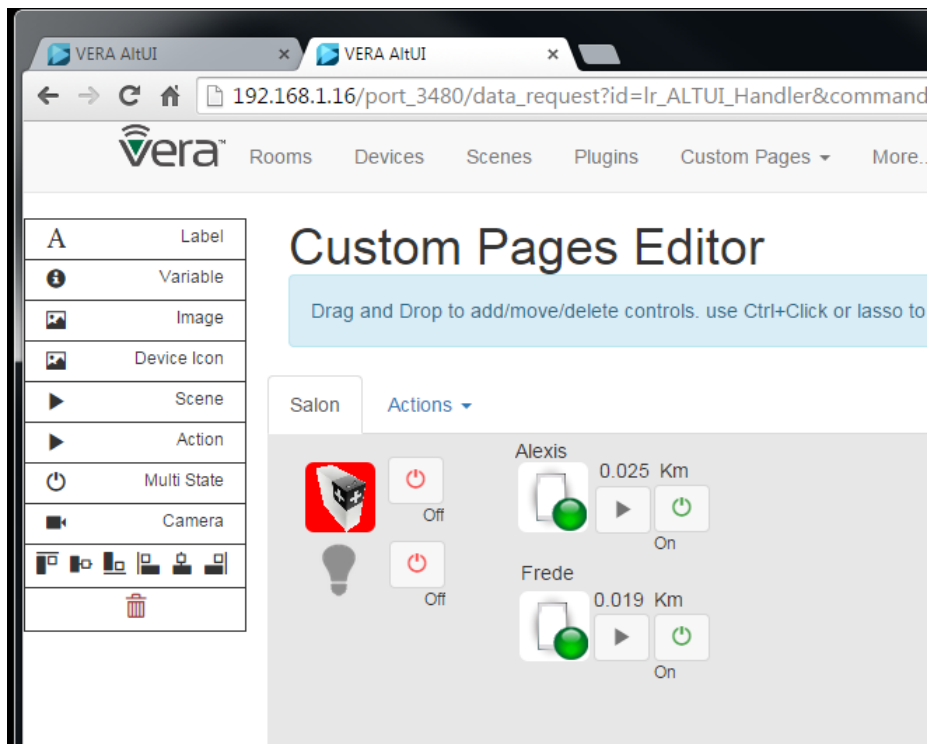
On this Picture you can see various important elements:

- The lasso (dotted line ) rectangle enabling the selection of multiple controls. Ctrl+Click is also supported
- The alignments tools in the left tool bar
- The resize handle at the bottom right corner of the image enabling you to size the image.



This will continue to evolve to add some more new tools ( which can be VERA related or even something totally different like a google chart gauge or whatever )

- New 2 state button tool



OnOff Button Properties

Device

(\*)iPhone de Alexis

Variable

Muted : (urn:upnp-org:serviceId:IPhoneLocator1)

☒ Inverted

OffLabel

Off

Action to switch OFF

SetMute

newMuteStatus

0

OnLabel

On

Action to switch ON

SetMute

newMuteStatus

1

Close
















Save changes



# UI5 Installation Instructions (similar for UI7)

## WARNING

- 1) Upload all these files

Nom	Modifié le	Type
 J_ALTUI_uimgr.js	08/03/2015 17:13	Fichier JS
 J_ALTUI_verabox.js	08/03/2015 16:12	Fichier JS
 L_ALTUI.lua	08/03/2015 15:36	Fichier LUA
 J_ALTUI_utils.js	07/03/2015 00:33	Fichier JS
 J_ALTUI_plugins.js	01/03/2015 19:10	Fichier JS
 J_ALTUI_iphone.js	01/03/2015 15:51	Fichier JS
 D_ALTUI.json	28/02/2015 16:49	Fichier JSON
 J_ALTUI.js	18/02/2015 13:52	Fichier JS
 D_ALTUI_UI7.json	15/02/2015 21:06	Fichier JSON
 I_ALTUI.xml	15/02/2015 18:01	Fichier XML
 S_ALTUI.xml	15/02/2015 18:01	Fichier XML
 J_ALTUI_jquery.ui.touch-punch.min.js	01/02/2015 22:48	Fichier JS
 D_ALTUI.xml	17/01/2015 16:05	Fichier XML
 L_ALTUIjson.lua	17/01/2015 15:41	Fichier LUA
 iconALTUI.png	17/01/2015 15:38	Image PNG

Example:

### Upload files

<a href="#">d</a>	<input type="button" value="Choisissez un fichier"/>	J_ALTUI_utils.js
<a href="#">d</a>	<input type="button" value="Choisissez un fichier"/>	L_ALTUI.lua
<a href="#">d</a>	<input type="button" value="Choisissez un fichier"/>	J_ALTUI_plugins.js
<a href="#">d</a>	<input type="button" value="Choisissez un fichier"/>	J_ALTUI_iphone.js
<a href="#">d</a>	<input type="button" value="Choisissez un fichier"/>	J_ALTUI.js
<a href="#">d</a>	<input type="button" value="Choisissez un fichier"/>	I_ALTUI.xml
<a href="#">d</a>	<input type="button" value="Choisissez un fichier"/>	S_ALTUI.xml
<a href="#">d</a>	<input type="button" value="Choisissez un fichier"/>	D_ALTUI_UI7.json
<a href="#">d</a>	<input type="button" value="Choisissez un fichier"/>	D_ALTUI.json
<a href="#">d</a>	<input type="button" value="Choisissez un fichier"/>	D_ALTUI.xml
<a href="#">d</a>	<input type="checkbox"/>	Restart Luup after upload
<a href="#">d</a>	<input type="button" value="GO"/>	

2) Create a device

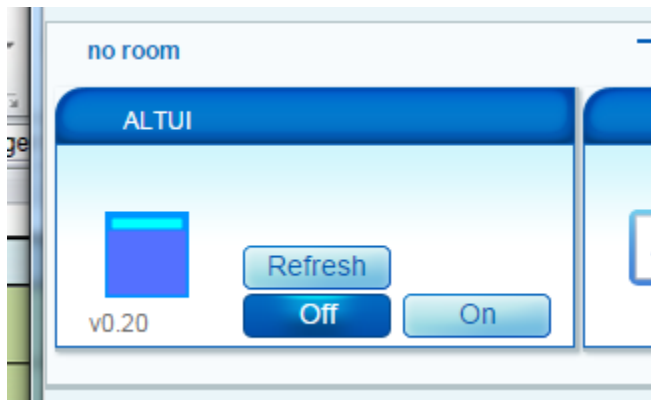
### Create device

Device type	<input type="text"/>
Internal ID	<input type="text"/>
Description	<input type="text"/>
Upnp Device Filename	<input type="text" value="D_ALTUI.xml"/>
Upnp Implementation Filename	<input type="text" value="I_ALTUI.xml"/>
Ip Address	<input type="text"/>
MAC	<input type="text"/>
Room	<input type="button" value="--no room --"/>
Parent device	<input type="button" value="No parent/Please select"/>
	<input type="button" value="Create device"/>

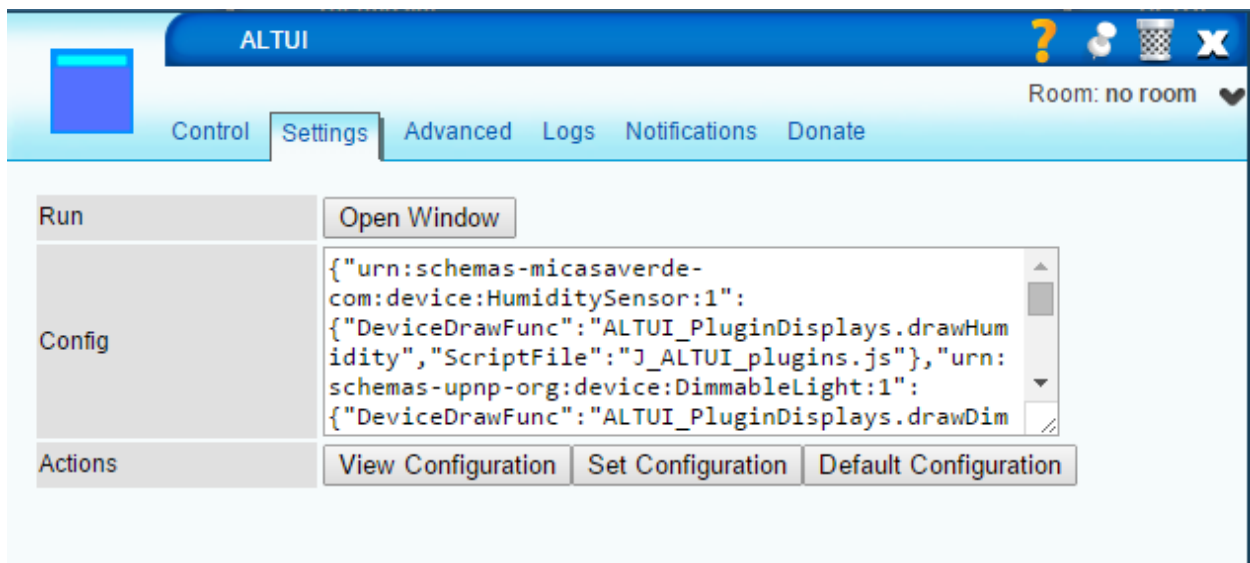
3) Reload lua



4) Find the device in UI5



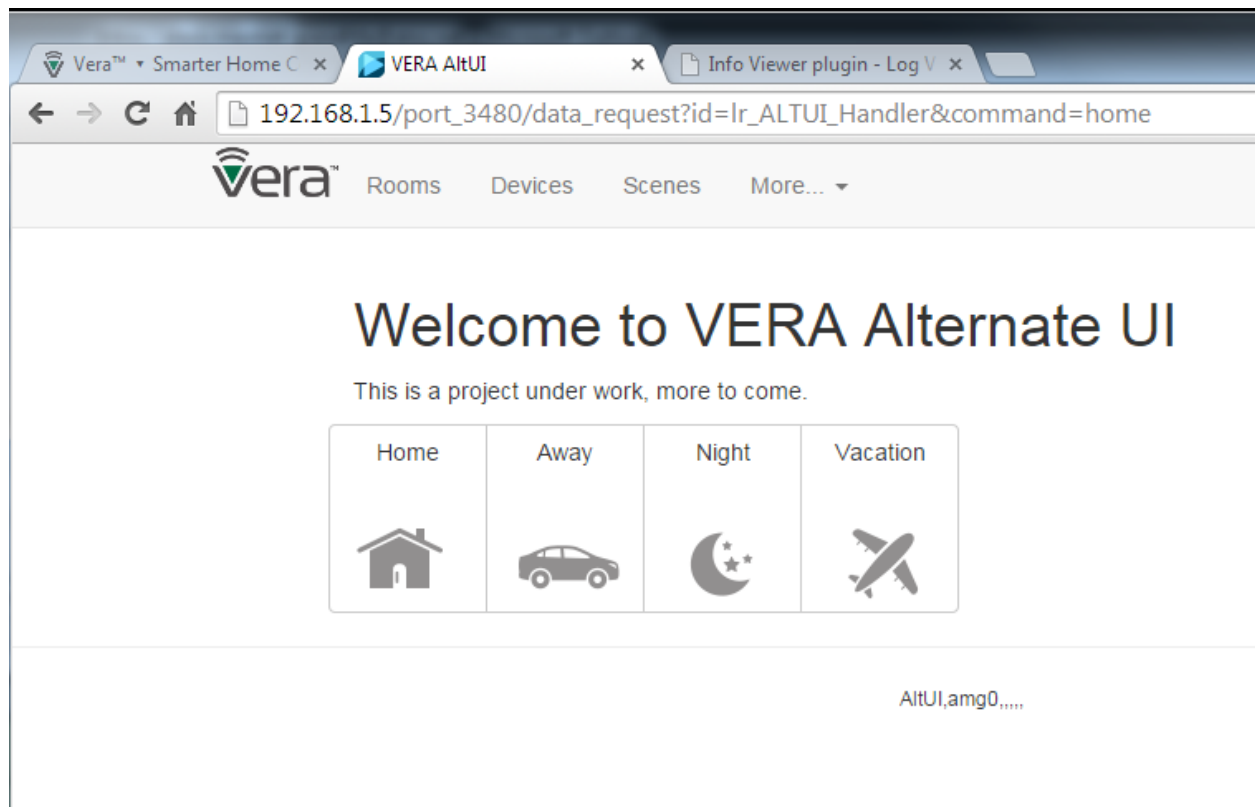
5) Open the settings tab



- View configuration : view the JSON configuration object in a JSON online viewer
- Set configuration : set the ALTUI plugin configuration
- Default : reset to default

6) Click on open window

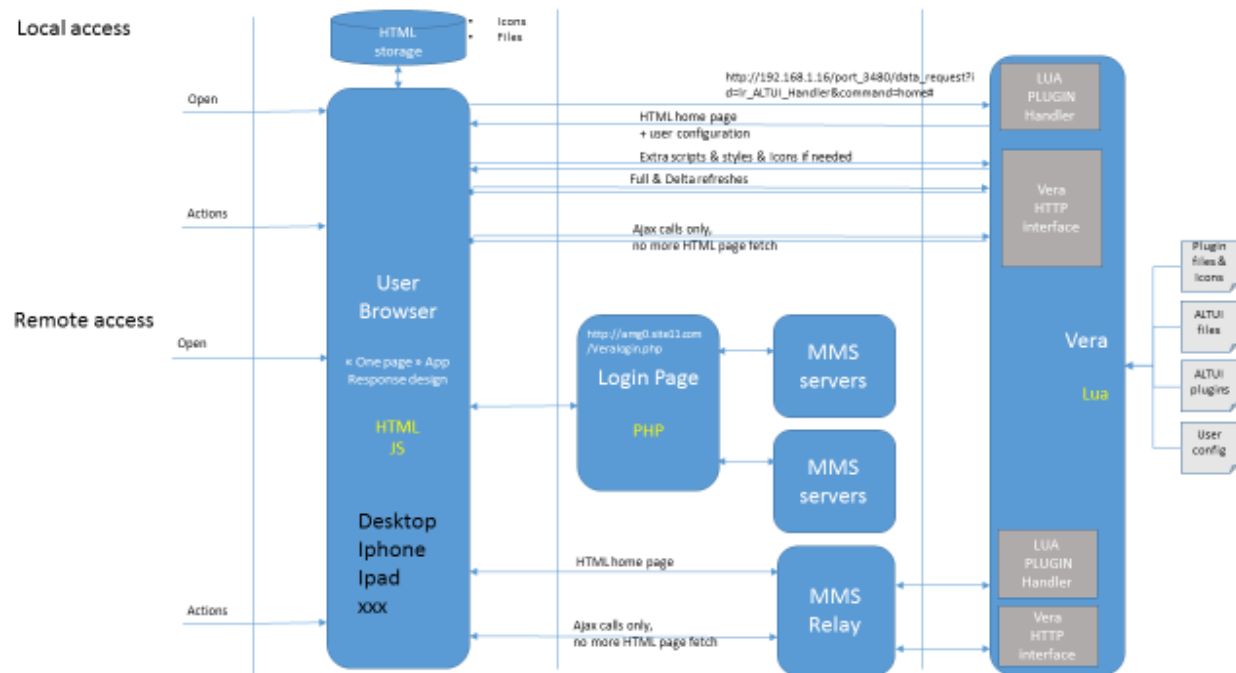
- a. “modes” cannot work on UI5 of course but rest should be ok



## Architecture and Source Code organization



## Data Flows



## Extensibility

### Mechanisms to extend

- Device dashboard drawing js function
- Device control panel js function
- New pages can be added ( Upnp devices, IP devices, Custom user pages , floor plan dashboard , google gauges etc )

### Javascript modules for customizable plugins

Plugins drawing are javascript modules providing function code and style css necessary. All the modules are loaded dynamically when needed

Plugins can customize/extend the drawings of device for 2 distinct scenario.

- a) the small device box on the Device page
- b) a control panel, dedicated for one device, having almost the full page to play with and display specific device status , controls, drawings etc... ( I added this "control panel" feature just in the drop down menu under Variable & Actions items. )

A default implementation is provided for both obviously. Right now the "control panel" one is useless and work in progress but I demonstrate the ability on 2 devices uses a custom control panel function. the Binary Light and the iPhone Locator. The point for me was to explain / demonstrate the extensibility

of the architecture and how it would work. if JS developpers / plugin authors have interest to create a control panel for their device ( or some other device ), we can integrate their work easily in independent modules

Now a bit on the "how":

- each device type can have a custom javascript file. this is declared in the .LUA file L\_ALTUI.lua. The "PluginConfig" LUA device variable contains the JSON object for this configuration and **can be modified to add new plugins.**
- in the configuration, for a given device type you can specify a script file (`["ScriptFile"]="J_ALTUI_plugins.js",`) , a small device box drawing function (`["DeviceDrawFunc"]="ALTUI_PluginDisplays.drawBinaryLight",`) , a full blown control panel drawing function (`["ControlPanelFunc"]="ALTUI_PluginDisplays.drawBinLightControlPanel",`) and a style function for your own CSS (`["StyleFunc"]="ALTUI_PluginDisplays.getStyle",`). All these are optional, default implementation is provided in any case. All these scripts & functions are dynamically loaded and executed when needed by the main page.
- The declared function can be qualified by any number of module name thus enabling to use the javascript module object pattern.
  - o Function can be 'myfunction()'
  - o Or 'myModule.mySubModule.myFunction()' ( any depth )
- see examples of Style and drawing functions in J\_ALTUI\_plugins.js or J\_ALTUI\_iphone.js

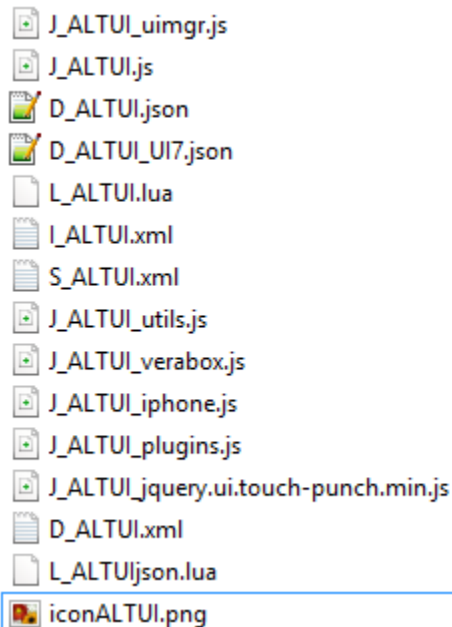
Note:

- the ["DeviceDrawFunc"] takes input parameters like (devid, device) and must return a string which the HTML going into the small device box on the main page.
- the ["ControlPanelFunc"] works slightly different in order to give almost full DOM control to the code writer. It takes input parameters like (devid, device, domparent (jquery based) and must write directly its HTML code into the domparent object ( using `$(domparent).append(...)` ). it felt more comfortable for the contralPanel function to really write in the DOM as they almost own the full page this time.

## Full Source code

all code available on [http://code.mios.com/trac/mios\\_ipx800/browser/trunk/AltUI](http://code.mios.com/trac/mios_ipx800/browser/trunk/AltUI) so feel free to try if you are interested.

## Source Files:



- **J\_ALTUI\_uimgr.js**
  - Implements the UIManager object. This object is in charge of all drawing on pages
    - Error messages
    - Device Drawing ( default & custom ) – manages the loading of JS files needed. Evaluate Icon conditions based on existing UI5 or UI7 descriptions.
    - Scene Drawing ( and editor )
    - Refresh UI ( when new data is arriving )
    - The main entry points ( pagesxxx() function per each page of the app )
    - House mode on UI7 only . the LUA plugin tells the application if we are on UI5 or UI7
  - It maintains internally the cache for device type information ( json, Upnp descriptions etc )
- **J\_ALTUI.js**
  - The classical JS for the setting page of the UI5 or UI7 plugin
- **D\_ALTUIxx.json**
  - The classical JSON files for the UI5 or UI7 plugin
- **L\_ALTUI.lua**
  - The main plugin lua code
  - It is seldomly used, just to register a handler to act as a web server serving initially the first home page layout, and eventually responding to a few ( one so far ) ajax call from the client. The idea is to not use it as much as possible to offload the application work on the client side as explained in the initial project rules. VERA is small, our PC are big
  - It will act as the data persistent place where configuration and ( in the future ) user custom pages descriptions are stored & saved as device variable. UI7 can store and

display JSON in its variable. UI5 has trouble to display it in the advanced tab as the string are not htmlEncoded but this is not a problem; we can manage this display & edit in the plugin JS setting page.

- **I\_ALTUI.xml , S\_ALTUI.xml**
  - Classical device files.
  - A Reset uPNP action is implemented to restore configuration to default
  - In the future, we may need a few to manage user custom pages, not sure yet
- **J\_ALTUI\_utils.js**
  - Global utilities like string.format() addition, or string.htmlEncode(), htmlDecode() addition to the string prototype
  - CSS Styles required by the application are managed here and injected dynamically ( avoid having to change the .LUA file and reloading every time )
  - It initializes the application by launching the Init() for the UIManager object and the VeraBox object
- **J\_ALTUI\_verabox.js**
  - Implements the communication with VERA
  - The UPnpHelper module
    - facilitates building of URL ( get set variables, run upnp, all the VERA Http calls basically including the HAG SOAP one )
    - Provides facilities for plugin author like simple SetOnOff() , SetArm() methods
  - The FileDB module
    - A cache of dynamically loaded files ( D\_xx files S\_xx files, or whatever ). Key is the file name.
    - In the future, I intent to use HTML5 persistent storage to cache content on a even longer term basis ( even when user closes the browser )
  - The VeraBox module
    - The core data load engine.
    - Manages getting the user\_data and status\_data using the loadversion versioning and various optimizations documented
    - Manages all information in a cache to not load it twice
    - Highly asynchronous, code executed in callback methods instead of waiting
      - getWeatherSettings : \_getWeatherSettings,
      - getBoxInfo : \_getBoxInfo,
      - getLuaStartup : \_getLuaStartup,
      - getRooms : \_getRooms, // in the future  
getRooms could cache the information and only call \_getRooms when needed
      - getDevices : \_getDevices,
      - getDeviceByID : \_getDeviceByID,
      - getScenes : \_getScenes,
      - getSceneByID : \_getSceneByID,

- getPlugins : \_getPlugins,
  - getHouseMode : \_getHouseMode,
  - setHouseMode : \_setHouseMode,
  - getStatus : \_getStatus,
  - getStates : \_getStates,
  - evaluateConditions : \_evaluateConditions, // evaluate a device condition table ( AND between conditions )
  - deleteRoom : \_deleteRoom,
  - runScene : \_runScene,
  - deleteScene : \_deleteScene,
  - reloadEngine : \_reloadEngine,
  - setStartupCode : \_setStartupCode,
  - setScene : \_setScene,
  - getCategoryTitle : \_getCategoryTitle,
  - getDeviceTypes
  - initEngine()
- **J\_ALTUI\_IPhone.js**
    - The custom drawing functions for the IPHONE locator plugin and the French Canal Plus control Plugin
    - Dynamically loaded when/if needed and configured in the LUA "PluginConfig" table to be loaded
  - **J\_ALTUI\_Plugins.js**
    - Same but for all the out of the box devices provided by VERA ( bin lights, motion, temp sensors, etc )
  - **J\_ALTUI\_jquery.ui.touch-punch.min.js**
    - A small jquery 3<sup>rd</sup> party to make the ipad/iphone/ touch screen device compatible with the click event ( ) so that touchend event can be used as a mouse click

### Basic rules for developers:

I most welcome any programmers help in this project if they are interested in submissions. The rules are simple,

- use bootstrap grid model ( row / cols ) for full responsive design, I d like to keep it running from desktop to ipad to iPhone 4S screen !
- minimize additional JS framework : I am trying to use bootstrap, jquery, jqueryUI and that's all. probably would like a try to add a lib for graphic widgets ( gauges etc ) also in the near future, suggestion welcome. must be easy and working with jquery as I am far from a JS guru

- use JS module pattern ( same as UI7 ) see example in the various modules. prefix private function with a '\_' and public function with a naming convention  
doSomethingToSomethingElse()
- all CSS class: try to always use the prefix : altui-xxx-xxx etc
- avoid synchronous call when possible ( always possible almost )