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**Communication frame between Application Android – Arduino card**

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1. **Scope**

In this document, we’ll describe the frame which let the communication between the android application and the Arduino card. The Frame will be send by Wifi.

1. **Description of the frame**

The frame is separate in 4 words, each of them let us to analyses what the android application send to the Arduino card. Actually, our code in the Arduino will analyses and control the output according of the frame.

* **the begin of the frame**
* **the tag**
* **the command of the different objects**
* **the end of the frame**

Let describe each of those words now.

1. **Start & end of the frame**

Start of the frame is really important because it will check if the frame is or isn’t a JSON object. Actually, if the frame doesn’t begin by a **“{“,** that’s mean the frame doesn’t respect our frame rules. For the the same reason, we have to detect the end of the frame, which end by a **“}”**.

So:

* The start of the frame is: **{**
* The end of the frame id: **}**

1. **Tag**

The tag let the Arduino card know which type of output it have to command. The different outputs are the leds, the garage & portal doors, the front door and the electronics curtains. Each tag correspond of a type of output, so the different tags we can find in the frame are:

* **“LIG” –** leds outputs
* **“GAT” –** garage & portal doors
* **“DOR” –** front door
* **“CUR” –** electronic curtain

1. **Command**

The command frame allowed us to know what device, according to the tag, the application want to command, and in which state we want to put the device. It work like this:

* **Device:stateDevice**

The device is an ID, so it’s a class **int**, and the stateDevice too. The token **“:”** separate the two information. And the token **“,”** separate 2 different commands.

1. **Example of a frame**

In this example, we want to switch on the led1, and switch off the second led, so theoretically we have the frame bellow:

End

Command …..

Tag

Start

**3 bytes x nb of command**

**1 byte**

**3 bytes**

**1 byte**

And now, the real frame that the android application will send to the Arduino (the Arduino code let analyses and apply this frame):