Description of the control commands of the controller sslac-esp32.

Getting controller values (all values are returned as json):
1. General information:
http://192.168.32.254/get?info=all
Example result:
{"SSID": "my-network", "isConnected": 1,
"isTime": 1,
"isRTC": 0,
"isRTCmaster": 0,
"isMaster": 0,
"isNeedSave": 0,
"isSSLAC": 0,
"master_id": "192.168.4.1",
"selfIP": "10.112.55.185",
"IPV4_type": "dhcp",
"netmask_sta": "255.255.255.0",
"gw_sta": "10.112.55.1",
"millis ()": 3022272,
"msDelta": 51157775,
"cMillis": 54180035,
"RunMode": 0,
"syncLeds": 1,
"syncPumps": 0,
"syncTimers": 0,
"c_descr": "SMAC16 (slave)",
"uptime": 3022273,
"TimeStamp": [2018,7,9,14,11,35],
"SSID_AP": "SMAC16 (slave)",
"ip_ap": "192.168.32.254",
"netmask_ap": "255.255.255.0",
"RSSI": - 87,
"IpReq": "none",

"cValue": [3507,3693,3160,3841,3402,3407,4095,4095,1,1,1,1,1,1,1,1]
, "networks": [Qvoice, Qguest, Enterprise, QUADRA, QUADRA, Qguest, Qvoice, Enterprise, Enterprise, Qvoice, QUADRA, Qguest, QUADRA, Enterprise, Qguest, Qvoice, alarms: [0,0,0,0,0,0,0,0]}
Significant parameters that are used:
"SSID" - the name of the network to which the controller is connected
"IsConnected" - status is connected (1), not connected (0)
"isTime" - set the time or not (1 or 0 respectively)
"isRTC" - presence of connected real time clock DS3231 (1-is, 0-no)
"selfIP" - the IP address of the controller received when connected to the network ("SSID" parameter)
"millis ()" is the number of milliseconds since the start.
"cMillis" - the current time of the controller in milliseconds.
"RunMode" - controller operating mode: // 0-master; 1-slave; 2-standalone;
"C_descr" - description / name of this controller, by default SMAC16;
"uptime" is similar to "millis ()"

"TimeStamp" - date and time of compilation of the firmware [year, month, day, hour, minutes, seconds]
"SSID_AP" is the name of the controller's own network
"ip_ap" is the IP address of the controller in its own network.
netmask_ap "is the network mask of the controller's own network
"RSSI" - signal strength of the connected network in dB
"cValue" is the current value of the dimming channels.
"networks" - an array of networks available for connection.

2. "Schedule of channels"
http://192.168.32.254/get?channels=all

Example result:
[{"value": [0,1927,3050,3050,0, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1] , "tp": [24300,27960,35400,60540,72,000,0,0,0,0,0,0,0,0,0,0], "color": [0,0,0] , "s_color": "ff0000", "group": 0, "type": 0, "inv": 0, "name": "Red", "gpio": 32, "freq": 32000, "bits" :5},
{...},
...
{...}]
Significant parameters that are used:
"value" - array of channel dimming values, (-1) end of array values
"tp" is an array of "time points" values in seconds from midnight (00:00:00), 0 is the end of array values.
"s_color" - 16-bit representation of the legend color of the channel in RGB format without the leading symbol "#"
"group" - belonging to the channel group from 0 to 7, 255 - does not belong to any of the groups.
"Type" - channel type 0-LED PWM: 1-Fan PWM (for working with temperature sensors); 2-dosing pumping ball; 3-timer; 255 - channel type is undefined.
"inv" - inversion of the signal to Canada (0-not inverted, 1-inverted)
"name" is the actual name of the channel.
"gpio" is the GPIO number of the controller on which this channel is located.
freq "is the frequency of the dimming channel in Hz.

2. "Channel groups"
http://192.168.32.254/get?groups=all
Example result:
[[{"name": "Main group", "alarmIndex": 255, "temp": 50, "step": 100, "isAlarm": 0, "interval": 10},
{...},
...,
{...}]
"name" is the name of the group.
"AlarmIndex" is the ID of the temperature sensor. (255 - there is no sensor)
"Temp" is the threshold temperature value, after which the temperature alarm mode is activated.
"Step" is the increment (change) value of the dimming value of the group channels in the temperature alarm mode.

"Interval" - the interval in seconds. Between the increments of the dimming values of the channels of the group
"IsAlarm" - a sign of the inclusion of a temperature alarm (0 no accident, 1 temperature failure)

3. Values for channels of type Fan PWM.
http://192.168.32.254/get?fans=all
Example result:
[{"min_temp": 35, "max_temp": 55, "min_value": 1000, "ds_id": 255},
{...},
...,
{...}]
"min_value" is the minimum channel dimming value
"min_temp" is the minimum temperature below which the dimming value in the channel is "min_value"
"max_temp" is the maximum temperature value at which the dimming value is set to maximum, the intermediate dimming values are calculated from the linear relationship.
"ds_id" is the ID of the temperature sensor on which the dimming value is set, if the value is 255, the channel is not tied to any of the actual temperature sensors and participates in the operation, the dimming value for this channel is set to the maximum value.

4. Dosing values for pump ballping.
http://192.168.32.254/get?dosing=all
Example result:
[{"power": 1100, "value": 120, "mg_day": 4000, "volume": 5000, "desolve": 400},
{...},
...,
{...}]

5.Value of channels type of timer:
http://192.168.32.254/get?timers=all
Example result:
[{"Dosing": 0,
"tp": [- 1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1, -1],
"duration": [0,0,0,0,0,0,0,0 , 0.0.0.0.0.0.0.0,0.0.0,0.0.0.0]},
{...},
...,
{...}]
"Dosing" is a sign of binding to the dosing pump (0 - no binding, 1 - it is)
"tp" is the array (24) of "time points" values in seconds from midnight, the value -1 means the end of the array.
"duration" is an array (24) of the channel enable time for the timer for the corresponding "time point" in seconds.

6. The values of the temperature sensors ds18b20
http://192.168.32.254/get?ds18b20=all
Example result:
[{"name": "name 1", "tempC": 21.75, "isExist": 0, "id": 0, "addr":
[16,210,157,65,1,8,0,184]},
{...},
...
{...}]
"name" is the name of the sensor.
"tempC" - temperature in degrees Celsius
"isExist" - whether the sensor is connected (1) or not (0)
"Id" - sensor ID
"addr" is an array (8 bytes) of the address of the sensor on the bus.

7. Getting the list of "neighboring" controllers connected to the same network as this controller and / or connected to the own network of this controller:
http://192.168.32.254/get?controllers=all
Example result:
[{"id": "", "c_descr": "", "ip": "", "lifetime": - 1, "isAlive": 0, "RunMode": 255},
{...},
...
{...}]
"Id" is the unique identifier of the "next" controller, corresponds to its MAC address
"C_descr" is the name of the "neighboring" controller.
"Ip" is the IP address of the "next" controller.
"Lifetime" is the time in ms since the last message was received from the "next" controller.
"IsAlive" - a sign of the availability of the "next" controller (0 - not available, 1 - available)
"RunMode" - the operating mode of the adjacent controller.

Set the controller values.
Single channel values.

1. The name of the channel.
http://192.168.32.254/set?nameX="<channel name> "
Where X is the numerical value of the channel ID from 0 to 15
Example: Set channel 6 to name6
http://192.168.32.254/set?name6="name6 "

2. Inverting the signal in the channel:
http://192.168.32.254/set?invX= <0,1>
Where X is the numerical value of the channel ID from 0 to 15, 0 the signal is not inverted, 1 is inverted.
Example: Set the signal inverting for channel ID5
http://192.168.32.254/set?inv5=1

3. Type of channel:
http://192.168.32.254/set?typeX= <0,1,2,3,255>

Where X is the numerical value of the channel ID from 0 to 15, 0-LED PWM, 1-FAN PWM, 2-dosing pump, 3-timer, 255-channel type is undefined.
Example: Set channel type 4, for controlling the metering pump
http://192.168.32.254/set?type4=2

4. Channel belonging to one of the 8 groups of channels.
http://192.168.32.254/set?groupX= <0-7>
Where X is the numerical value of the channel ID from 0 to 15, the channel group ID is from 0 to 7, or 255 if the channel does not belong to any group.
Example: to set the channel ID 7 to a channel group with ID 2
http://192.168.32.254/set?group7=2

5. Frequency of channel dimming (valid only for LED and FAN channel type)
http://192.168.32.254/set?freqX= <256-19500>
Where X is the numerical value of the channel ID, the dimming frequency in Hz

6. Depth of channel dimming (valid only for LED and FAN channel type)
http://192.168.32.254/set?bitsX= <value>
Currently not yet used.

7.Color legend color for displaying on the daily chart
http://192.168.32.254/set?s_colorX= <value>
Where X is the numerical value of the channel ID, the hexadecimal color representation in RGB format without the leading character "#"
Example to set the color of the legend of channel ID 10 to # 0033cc
http://192.168.32.254/set?s_color="0033cc "

8. "Manual mode" channel management.
http://192.168.32.254/set?manualX= <value>
Where X is the numerical value of the channel ID, the dimming value in channel 0-4095. When the "manual mode" is set, the dimming values remain constant until the "manual mode" is disconnected, after which the channel receives the dimming value calculated by the controller. The output from the manual mode is sending the value -1
Example: set the dimming value in channel ID 0 in 2000
http://192.168.32.254/set?manual0=2000
Exit manual channel management mode:
http://192.168.32.254/set?manual0=-1

9 Setting the channel group name
http://192.168.32.254/set?gr_nameX="<group name> "
Where X is the numerical value of the group ID from 0 to 7, the name of the group.
Example set for group ID 0 name MainGroup
http://192.168.32.254/set?gr_name0="MainGroup "
9.1 Setting the "binding" of a group to a temperature sensor:
http://192.168.32.254/set?gr_sensX=<ID temperature sensor>
9.2 Setting the temperature threshold for this group:
http://192.168.32.254/set?gr_treshX=<temperature in gr. Celsius>
9.3 Setting the increment of the channel group's dimming values:
http://192.168.32.254/set?gr_stepX=<step dimming step>

9.4 Setting the interval for the dimming of the group channels.
http://192.168.32.254/set?gr_intH=<interval in seconds>

Additionally:
For channels type FAN PWM
1. Minimum fan speed
http://192.168.32.254/set?min_tempX= <value>
Where X is the numerical value of the channel ID, the value is the temperature From the minimum rpm (the minimum value of dimming in the channel)
Example: set ID channel 1 to minimum temperature of 35 degrees Celsius
http://192.168.32.254/set?min_temp1=35

2. The value of the minimum temperature dimming
http://192.168.32.254/set?min_valueX= <value>
Where X is the numerical value of the channel ID, the dimming value in the channel
Example: set the minimum channel dimming value of ID 2 to 1750
http://192.168.32.254/set?min_value2=1750

3. Maximum revolutions temperature
http://192.168.32.254/set?max_tempX= <value>
Where X is the numerical value of the channel ID, the value of the temperature C is the maximum speed (the dimming value in the channel is 4095)
Example set for channel ID 1 maximum temperature of 65 degrees Celsius
http://192.168.32.254/set?max_temp1=65

4. Temperature sensor for controlling the channel
http://192.168.32.254/set?fn_dsidX = <value>
Where X is the numerical value of the channel ID, the ID of the temperature sensor is from 0 to 15
Example for ID 8 channel control from temperature sensor with ID 0
http://192.168.32.254/set?fn_dsid8=0
In case the channel has a control sensor, but the sensor is physically absent, the dimming value in the channel is set to a maximum (4095)

For channels type dosing pump

1. Performance of the dosing pump
http://192.168.32.254/set?dp_powerX= <value>
Where X is the numerical value of the channel ID of the pump control, the value of the pump output in ml / h
Example: set the pump capacity on channel ID 15 in 1.2 l / h
http://192.168.32.254/set?dp_power15=1200

2. The total amount of dosing per day
http://192.168.32.254/set?dp_valueX= <value>
Where X is the numerical value of the Pump Control Channel ID, the value of the total dosing in ml / day
Example: set the total number of dosing for the pump on channel ID 14 in 200ml / day
http://192.168.32.254/set?dp_value14=200

"Time points" and values in points for channels type LED PWM and timer.

1. LED PWM
http://192.168.32.254/set?ch=X&tY= <value> & vY = <value>
Where X is the channel ID from 0 to 15, t + Y is the serial number of the point from 0 to 15, the time in seconds after 00:00:00; v + Y is the dimming value in the Y point from 0 to 4095
Example to set all 16 points for channel ID 10
http://192.168.32.254/set?
ch=10&v0=0&v1=860&v2=1679&v3=2416&v4=3030&v5=3563&v6=3890&v7=4095&v8=4095&v9=3890&v10=3563&v11=3030&v12=2416&v13=1679&v14=860&v15=0]&t0=27000&t1= 30720 & t2 = 34440 & t3 = 38160 & t4 = 41880 & t5 = 45600 & t6 = 49320 & t7 = 53040 & t8 = 56760 & t9 = 60480 & t10 = 64200 & t11 = 67920 & t12 = 71640 & t13 = 75360 & t14 = 79080 & t15 = 82800

2. The timer
http://192.168.32.254/set?tm=X&tY= <value> & vY = <value>
Similarly, as for the LED channel, except that in the v argument, the value is the duration of the enabled channel state (dimming is 4095) in seconds.

Temperature sensors
1. Sensor name
http://192.168.32.254/set?ds_nameX= <name>
Where X is the numerical value of the sensor ID from 0 to 15

2. Removing the sensor from the list of sensors
http://192.168.32.254/set?ds_deleteX=
Where X is the numerical value of the sensor ID from 0 to 15

3. Scan the OneWire bus for new sensors
http://192.168.32.254/set?ds18b20=rescan

Connecting to a WiFi network
http://192.168.32.254/wifi?ssid=<network name> & passwd = <network password>

Other management commands.
http://192.168.32.254/save - save configuration files to memory
http://192.168.32.254/reboot - restart the controllers
http://192.168.32.254/upload - download files to the controller, both configuration files and user interface files.
http://192.168.32.254/update - download new firmware to the controller

Other parameters:
1. Operating mode of the controller:
http://192.168.32.254/set?runmode=x
x is the number // 0-master; 1-slave; 2-standalone;
2. Description / controller name:

http://192.168.32.254/set?c_descr= <name>
where <name> is a string of characters.
3. Install the master controller for the Slave mode.
http://192.168.32.254/set?master_id=<unique identifier of the controller master, see
7. Getting the list of "neighboring" controllers.
4. Setting the start page of the controller user interface:
http://192.168.32.254/set?root_page=< interface file name>
5. Setting the parameters of the controller's own network (Access Point): (the name of the controller's own network corresponds to the controller's c_descr value)
5.1 Setting the network password:
http://192.168.32.254/set?password_ap= <password>
5.2 Installation of the controller's IP address in the network:
http://192.168.32.254/set?ip_ap=<IP address>
5.3 Setting the network mask:
http://192.168.32.254/set?netmask_ap=<Mask Mask>

Configuration files on the controller (all files are in json format)
config.json - the main configuration file.
channels.json - description of channels (the format is exactly the same as when the query is executed: 192.168.32.254/get?channels=all)
groups.json - description of the groups (the format is exactly the same as when the query is executed: 192.168.32.254/get?groups=all)
fans.json - a description of the fans (the format is exactly the same as when you execute the request http://192.168.32.254/get?fans=all)
ds18b20.json - description of temperature sensors (the format is exactly the same as for the query http://192.168.32.254/get?ds18b20=all)
timers.json - a description of the timers (the format is exactly the same as when the query is executed: 192.168.32.254/get?timers=all)
dosing.json - description of the dispensing pumps (the format is exactly the same as for the query http://192.168.32.254/get?dosing=all)