

DOCUMENTATION OF TUXDROID PYTHON API 0.2.3 (SVN/UNRELEASED)

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1) Object : tux (tuxapi_class.TUXTCPCommunicator)

Main class of tux object

Sub class of this class:

"cmd" as class	: Class which manages the tux commands
"connect" as class	: Class which manages connection functions
"daemon" as class	: Class which manages the daemon commands
"event" as class	: Class which manages the events
"hw" as class	: Class which manages the tux hardware
"micro" as class	: Class which manages the microphone functions
"misc" as class	: Class which manages the miscellaneous functions
"monitoring" as class	: Class which manages the monitoring
"status" as class	: Class which manages the request of a status
"sys" as class	: Class which manages the system functions
"tts" as class	: Class which manages the text to speech
"wav" as class	: Class which manages the wav functions

Global variables of this class:

"my_name" as string	: Name of the api instance
"print_status" as boolean	: Allow to print the raw statuses
"print_warnings" as boolean	: Allow to print the warnings

Comments:

Call the destroying function at the end of your script for closing the api correctly.

```
>>> tux.destroy()
```

"tts" class is compatible with "tuxtttsd" v 0.3.0 or more recent

1.1) Object : tux.cmd (tuxapi_class.TUXcmd)

Class which manages the tux commands

Global variables of this class:

"last_ack" as integer : ACK value of the last command
(ACK_CMD_DONGLE_NOT_PRESENT|ACK_CMD_TIMEOUT|
ACK_CMD_OK|ACK_CMD_KO|ACK_CMD_ERROR)
"no_ack" as boolean : Allow to wait a ACK from tuxd

1.1.1) Methode : tux.cmd.audio_channel_general

Send a command to tux for selecting the "general" audio channel in the dongle

Example:

```
>>> tux.cmd.audio_channel_general()
```

1.1.2) Methode : tux.cmd.audio_channel_tts

Send a command to tux for selecting the "TTS" audio channel in the dongle

Example:

```
>>> tux.cmd.audio_channel_tts()
```

1.1.3) Methode : tux.cmd.eyes_close

Send a command to tux for closing the eyes

Example:

```
>>> tux.cmd.eyes_close()
```

1.1.4) Methode : tux.cmd.eyes_off

Send a command to tux for stopping the eyes movement

Example:

```
>>> tux.cmd.eyes_off()
```

1.1.5) Methode : tux.cmd.eyes_on

Send a command to tux for moving the eyes

Parameters:

"count" as integer : Number of movements
(default = 1)

Example:

```
>>> tux.cmd.eyes_on()  
>>> tux.cmd.eyes_on(2)
```

1.1.6) Methode : tux.cmd.eyes_on_free

Send a command to tux for moving the eyes in free mode

Parameters:

"count" as integer : number of movements
(default = 1)

Example:

```
>>> tux.cmd.eyes_on_free()  
>>> tux.cmd.eyes_on_free(2)
```

1.1.7) Methode : tux.cmd.eyes_open

Send a command to tux for opening the eyes

Example:
>>> tux.cmd.eyes_open()

1.1.8) Methode : tux.cmd.ir_off

Send a command to tux for turning the IR off

Example:
>>> tux.cmd.ir_off()

1.1.9) Methode : tux.cmd.ir_on

Send a command to tux for turning the IR on

Example:
>>> tux.cmd.ir_on()

1.1.10) Methode : tux.cmd.ir_send

Send a command to tux for sending an IR code

Parameters:
"address" as integer : RC5 address
"command" as integer : RC5 command

Example:
>>> tux.cmd.ir_send(1,1)

1.1.11) Methode : tux.cmd.ledl_during

Send a command to tux for turning the left led on during a specified time

Parameters:
"seconds" as float : time to wait in seconds

Example:
>>> tux.cmd.ledl_during(2.5)

1.1.12) Methode : tux.cmd.ledl_during_free

Send a command to tux for turning the left led on during a specified time in free mode

Parameters:
"seconds" as float : time to wait in seconds

Example:
>>> tux.cmd.ledl_during_free(2.5)

1.1.13) Methode : tux.cmd.ledl_off

Send a command to tux for turning the left led off

Example:
>>> tux.cmd.ledl_off()

1.1.14) Methode : tux.cmd.ledl_on

Send a command to tux for turning the left led on

Example:
>>> tux.cmd.ledl_on()

1.1.15) Methode : tux.cmd.ledr_during

Send a command to tux for turning the right led on during a specified

time

Parameters:

"seconds" as float : time to wait in seconds

Example:

```
>>> tux.cmd.ledr_during(2.5)
```

1.1.16) Methode : tux.cmd.ledr_during_free

Send a command to tux for turning the right led on during a specified time in free mode

Parameters:

"seconds" as float : time to wait in seconds

Example:

```
>>> tux.cmd.ledr_during_free(2.5)
```

1.1.17) Methode : tux.cmd.ledr_off

Send a command to tux for turning the right led off

Example:

```
>>> tux.cmd.ledr_off()
```

1.1.18) Methode : tux.cmd.ledr_on

Send a command to tux for turning the right led on

Example:

```
>>> tux.cmd.ledr_on()
```

1.1.19) Methode : tux.cmd.leds_blink

Send a command to tux for blinking the leds

Parameters:

"count" as integer : number of blink(0..255)

"delay" as integer : delay between 2 states (u=4msec)

Example:

```
>>> tux.cmd.leds_blink(10,25)
```

1.1.20) Methode : tux.cmd.leds_during

Send a command to tux for turning the leds on during a specified time

Parameters:

"seconds" as float : time to wait in seconds

Example:

```
>>> tux.cmd.leds_during(2.5)
```

1.1.21) Methode : tux.cmd.leds_during_free

Send a command to tux for turning the leds on during a specified time in free mode

Parameters:

"seconds" as float : time to wait in seconds

Example:

```
>>> tux.cmd.leds_during_free(2.5)
```

1.1.22) Methode : tux.cmd.leds_off

Send a command to tux for turning the leds off

Example:
>>> tux.cmd.leds_off()

1.1.23) Methode : tux.cmd.leds_on

Send a command to tux for turning the leds on

Example:
>>> tux.cmd.leds_on()

1.1.24) Methode : tux.cmd.mouth_close

Send a command to tux for closing the mouth

Example:
>>> tux.cmd.mouth_close()

1.1.25) Methode : tux.cmd.mouth_off

Send a command to tux for stopping the mouth movement

Example:
>>> tux.cmd.mouth_off()

1.1.26) Methode : tux.cmd.mouth_on

Send a command to tux for moving the mouth

Parameters:
"count" as integer : number of movements
(default = 1)

Example:
>>> tux.cmd.mouth_on()
>>> tux.cmd.mouth_on(2)

1.1.27) Methode : tux.cmd.mouth_on_free

Send a command to tux for moving the mouth in free mode

Parameters:
"count" as integer : number of movements
(default = 1)

Example:
>>> tux.cmd.mouth_on_free()
>>> tux.cmd.mouth_on_free(2)

1.1.28) Methode : tux.cmd.mouth_open

Send a command to tux for opening the mouth

Example:
>>> tux.cmd.mouth_open()

1.1.29) Methode : tux.cmd.ping

Send a command to tux for the "ping-pong" test

Parameters:
"count" as integer : number of pong requested
(default = 200)

Example:
>>> tux.cmd.ping()

```
>>> tux.cmd.ping(200)
```

1.1.30) Methode : tux.cmd.raw

Send a raw command to tux

Parameters:

```
"cmd" as integer      : command
"param1" as integer   : parameter 1 of these command
"param2" as integer   : parameter 2 of these command
"param3" as integer   : parameter 3 of these command
```

Return a ACK if it's required

Example:

```
>>> tux.cmd.raw(BLINK_EYES_CMD,4,0,0)
```

1.1.31) Methode : tux.cmd.sleep_off

Send a command to tux for turning the sleep mode off

Example:

```
>>> tux.cmd.sleep_off()
```

1.1.32) Methode : tux.cmd.sleep_on

Send a command to tux for turning the sleep mode on

Example:

```
>>> tux.cmd.sleep_on()
```

1.1.33) Methode : tux.cmd.sound_play

Send a command to tux for playing a sound from the flash memory

Parameters:

```
"index" as integer    : index of the sound
"volume" as integer    : volume of the sound(0..7,0=max)
                        (default = 0)
```

Example:

```
>>> tux.cmd.sound_play(1)
>>> tux.cmd.sound_play(1,0)
```

1.1.34) Methode : tux.cmd.sound_store_index

Send a command to tux for indexing the sound

Parameters:

```
"highAdd" as integer   : high byte address of the sound
"middleAdd" as integer : middle byte address of the sound
"lowAdd" as integer    : low byte address of the sound
```

Example:

```
>>> tux.cmd.sound_store_index(0x00,0x04,0x00)
```

1.1.35) Methode : tux.cmd.sound_storing

Send a command to tux for storing a sound collection in the memory flash

Parameters:

```
"number" as integer    : number of sounds to be stored
```

Example:

```
>>> tux.cmd.sound_storing(10)
```


1.1.36) Methode : tux.cmd.sound_test

Send a command to tux for testing the sound in tux

Example:
>>> tux.cmd.sound_test()

1.1.37) Methode : tux.cmd.spinl_off

Send a command to tux for stopping the spinning movement

Example:
>>> tux.cmd.spinl_off()

1.1.38) Methode : tux.cmd.spinl_on

Send a command to tux to spin to the left

Parameters:
"count" as integer : number of quarter turns
(default = 4)
"speed" as integer : speed of the movement(1..5)
(default = 5)

Example:
>>> tux.cmd.spinl_on()
>>> tux.cmd.spinl_on(2) (count = 2)
>>> tux.cmd.spinl_on(2,5) (count = 2 and speed = 5)

1.1.39) Methode : tux.cmd.spinl_on_free

Send a command to tux to spin to the left in free mode

Parameters:
"count" as integer : number of quarter turns
(default = 4)
"speed" as integer : speed of the movement(1..5)
(default = 5)

Example:
>>> tux.cmd.spinl_on_free()
>>> tux.cmd.spinl_on_free(2) (count = 2)
>>> tux.cmd.spinl_on_free(2,5) (count = 2 and speed = 5)

1.1.40) Methode : tux.cmd.spinr_off

Send a command to tux for stopping the spinning movement

Example:
>>> tux.cmd.spinr_off()

1.1.41) Methode : tux.cmd.spinr_on

Send a command to tux to spin to the right

Parameters:
"count" as integer : number of quarter turns
(default = 4)
"speed" as integer : speed of the movement(1..5)
(default = 5)

Example:
>>> tux.cmd.spinr_on()
>>> tux.cmd.spinr_on(2) (count = 2)
>>> tux.cmd.spinr_on(2,5) (count = 2 and speed = 5)

1.1.42) Methode : tux.cmd.spinr_on_free

Send a command to tux to spin to the right in free mode

Parameters:

"count" as integer : number of quarter turns
(default = 4)
"speed" as integer : speed of the movement(1..5)
(default = 5)

Example:

```
>>> tux.cmd.spinr_on_free()
>>> tux.cmd.spinr_on_free(2)    (count = 2)
>>> tux.cmd.spinr_on_free(2,5)  (count = 2 and speed = 5)
```

1.1.43) Methode : tux.cmd.structured

Send a structured command to tux

Parameters:

"fct" as integer : function of tux
"cmd" as integer : command for this function
"param1" as integer : parameter 1 for this command
"param2" as integer : parameter 2 for this command
"param3" as integer : parameter 3 for this command

Return a ACK as integer

Example:

```
>>> tux.cmd.structured(TUX_CMD_STRUCT_EYES,TUX_CMD_STRUCT_SUB_ON
,count,0,0)
```

1.1.44) Methode : tux.cmd.wings_off

Send a command to tux for stopping the wings movement

Example:

```
>>> tux.cmd.wings_off()
```

1.1.45) Methode : tux.cmd.wings_on

Send a command to tux for moving the wings

Parameters:

"count" as integer : number of movements
(default = 1)
"speed" as integer : speed of the movement(1-5)
(default = 5)

Example:

```
>>> tux.cmd.wings_on()
>>> tux.cmd.wings_on(2)    (2 movements)
>>> tux.cmd.wings_on(2,5)  (2 movements and speed=5)
```

1.1.46) Methode : tux.cmd.wings_on_free

Send a command to tux for moving the wings in free mode

Parameters:

"count" as integer : number of movements
(default = 1)
"speed" as integer : speed of the movement(1..5)
(default = 5)

Example:

```
>>> tux.cmd.wings_on_free()
>>> tux.cmd.wings_on_free(2)    (2 movements)
```

```
>>> tux.cmd.wings_on_free(2,5)    (2 movements and speed=5)
```

1.2) Object : tux.connect (tuxapi_class.TUXconnect)

Class which manages connection functions

1.2.1) Methode : tux.connect.disconnect_from_tux

Disconnect from tux

Parameters:

"seconds" as float : Time to wait in seconds

Example:

```
>>> tux.sys.wait(2.4)
```

1.2.2) Methode : tux.connect.connect_to_tux

Connect to a tux by its ID

Parameters:

"id" as uint16 : ID of the tux you want to connect to
0 and 0xFFFF (65536) are not valid ID's

Returns:

"True" if the command has been sent successfully,
"False" otherwise.

Example:

```
>>> tux.connect.connect_to_tux(300)
```

1.2.3) Methode : tux.connect.random_connect_to_tux

Connect to the first tux discovered

Catch any disconnected tux, request it's ID and connect to it.

Returns:

"True" if the command has been sent successfully,
"False" otherwise.

1.2.4) Methode : tux.connect.id_request

Get the ID of tux currently connected

Returns:

"id" as uint16 (0 < id < 65536) if the command has been sent
successfully,
"False" otherwise.

1.2.5) Methode : tux.connect.id_lookup

Get the ID of the first disconnected tux which is discovered

The first disconnected tux that will detect this command will reply with it's ID and disconnect immediately. You can then connect to that tux with the ID you just got.

In order to get the ID's of more than one disconnected tux, you have to issue this command multiple times until you don't get any new ID.

Returns:

"id" as uint16 (0 < id < 65536) if the command has been sent
successfully,
"False" otherwise.

1.2.6) Methode : tux.connect.change_id

Changes the ID of a disconnected tux

You have to push on the head button of tux for XXX seconds while sending this command in order to validate the ID change request, this in order to avoid stealing a tux too easily.

Parameters:

"id" as uint16 : new ID you want to set to your tux
0 and 0xFFFF (65536) are not valid ID's

Returns:

"True" if the command has been sent successfully,
"False" otherwise.

1.2.7) Methode : tux.connect.sleep

Set tux in sleep mode

Returns:

"True" if the command has been sent successfully,
"False" otherwise.

1.2.8) Methode : tux.connect.wakeup

Wake-up a tux if it's in sleep mode.

Parameters:

"id" as uint16 : ID of the tux you want to wake-up
0 and 0xFFFF (65536) are not valid ID's

Returns:

"True" if the command has been sent successfully,
"False" otherwise.

1.2.9) Methode : tux.connect.avoid_wifi

Configure the RF module to avoid a given wifi channel

Parameters:

"channel" : wifi channel number that tux should avoid using
Channels from 1 to 14 are valid wifi channels. Set the wifi channel to 0 to disable channel avoidance and use the complete range of frequencies.

Returns:

"True" if the command has been sent successfully,
"False" otherwise.

1.3) Object : tux.daemon (tuxapi_class.TUXdaemon)

Class which manages the daemon commands

Global variables of this class:

"connected" as boolean : State of the connection to tuxd

1.3.1) Methode : tux.daemon.auto_connect

Allow to connect the api to tuxd automatically

Parameters:

"value" as boolean : turn on/off the auto_connect mode
"address" as string : Tcp/IP Host address
(default = 'localhost')
"port" as integer : Tcp/IP Port number

(default = 5000)

Examples:

```
>>> tux.daemon.auto_connect(True)
>>> tux.daemon.auto_connect(True, '192.168.0.1')
>>> tux.daemon.auto_connect(True, '192.168.0.1', 5000)
```

1.3.2) Methode : tux.daemon.connect

Connect tux object to tuxd

Parameters:

"port" as integer	: Tcp/IP Port number (default = 5000)
"address" as string	: Tcp/IP Host address (default = 'localhost')

Examples:

```
>>> tux.daemon.connect()
>>> tux.daemon.connect('192.168.0.1')
>>> tux.daemon.connect('192.168.0.1', 5000)
```

Comment:

The variable "tux.daemon.connected" contains the result of this method

1.3.3) Methode : tux.daemon.disconnect

Disconnect tux object from tuxd

Example:

```
>>> tux.daemon.disconnect()
```

1.3.4) Methode : tux.daemon.disconnect_client

Disconnect a client from tuxd

Parameters:

"id_client" as integer : id of the client to disconnect

Example:

```
>>> tux.daemon.disconnect_client(0)
```

1.3.5) Methode : tux.daemon.get_client_count

Get the number of clients connected to tuxd

Return an integer

Example:

```
>>> print tux.daemon.get_client_count()
```

1.3.6) Methode : tux.daemon.get_client_name

Get the name of a client of tuxd

Return a string

Example:

```
>>> print tux.daemon.get_client_name(0)
```

1.3.7) Methode : tux.daemon.get_my_client_id

Get the client id of my connection to tuxd

Return an integer

Example:
>>> print tux.daemon.get_my_client_id()

1.3.8) Methode : tux.daemon.get_version

Get the version of tuxd

Return a string

Example:
>>> print tux.daemon.get_version()

1.3.9) Methode : tux.daemon.kill

Kill tuxd

Example:
>>> tux.daemon.kill()

1.3.10) Methode : tux.daemon.print_clients_name

Print the name of all the clients connected to tuxd

Example:
>>> tux.daemon.print_clients_name()

1.3.11) Methode : tux.daemon.set_my_client_name

Set my client name on tuxd

Parameters:
"name" as string : name of this client (max 11 char)

Example:
>>> tux.daemon.set_my_client_name('Py client')

Comment:
The variable 'tux.my_name' is affected by this function

1.4) Object : tux.event (tuxapi_class.TUXevent)

Class which manages the events

Global variables of this class:

"on_bt_pushed" as pof	: On tux button pushed
"on_head_bt_pushed" as pof	: On tux head button pushed
"on_lwing_bt_pushed" as pof	: On tux left wing button pushed
"on_rwing_bt_pushed" as pof	: On tux right wing button pushed
"on_bt_released" as pof	: On tux button released
"on_head_bt_released" as pof	: On tux head button released
"on_lwing_bt_released" as pof	: On tux left wing button released
"on_rwing_bt_released" as pof	: On tux right wing button released
"on_remote_bt" as list of pof	: On remote controller button pressed
"on_status" as pof	: On status arrival
"on_remote" as pof	: On remote controller event
	param 1 : Key as integer
"on_light_level" as pof	: On light level event
	param 1 : light value as integer
"on_connected" as pof	: On api connected to tuxd
"on_disconnected" as pof	: On api disconnect from tuxd
"on_mouth_open" as pof	: On mouth open event
"on_mouth_close" as pof	: On mouth close event
"on_power_plugged" as pof	: On power plugged event
"on_power_unplugged" as pof	: On power unplugged event
"on_left_blue_led_on" as pof	: On left blue led changed to on
"on_left_blue_led_off" as pof	: On left blue led changed to off
"on_right_blue_led_on" as pof	: On right blue led changed to on

```

"on_right_blue_led_off" as pof : On right blue led changed to off
"on_eyes_open" as pof : On eyes open event
"on_eyes_close" as pof : On eyes close event
"on_rf_connected" as pof : On RF is connected
"on_rf_disconnected" as pof : On RF is disconnected
"on_pong_received" as pof : On pong status received
"on_mouth_stop" as pof : On mouth stop event
"on_eyes_stop" as pof : On eyes stop event
"on_wings_stop" as pof : On wings stop event
"on_spin_stop" as pof : On spin stop event
(pof = pointer of function)

```

Example of associating a function to a remote event:

```

>>> def my_function(key):
>>>     print "Button %s is pressed"%remote_bt_name[key]
>>> tux.event.on_remote=my_function

```

Example of associating a function to a specific remote event:

```

>>> def play_pause():
>>> tux.sys.shell("audacious --play-pause")
>>> tux.event.on_remote_bt[K_PLAYPAUSE]=play_pause

```

Key constants of the remote controller:

```

(K_0,K_1,K_2,K_3,K_4,K_5,K_6,K_7,K_8,K_9,K_STANDBY,
K_MUTE,K_VOLUMEPLUS,K_VOLUMEMINUS,K_ESCAPE,K_YES,
K_NO,K_BACKSPACE,K_STARTVOIP,K_RECEIVECALL,K_HANGUP,
K_STAR,K_SHARP,K_RED,K_GREEN,K_BLUE,K_YELLOW,
K_CHANNELPLUS,K_CHANNELMINUS,K_UP,K_DOWN,K_LEFT,
K_RIGHT,K_OK,K_FASTREWIND,K_FASTFORWARD,K_PLAYPAUSE,
K_STOP,K_RECORDING,K_PREVIOUS,K_NEXT,K_MENU,K_MOUSE,
K_ALT)

```

1.4.1) Methode : tux.event.clear

Clear all events

Example:
>>> tux.event.clear()

1.4.2) Methode : tux.event.remote_key_to_string

Get the string name of a remote key value

Parameters:
"key" as integer : key to translate to string

Return a string

Example:
>>> print tux.event.remote_key_to_string(10)

1.4.3) Methode : tux.event.restore

Restore all events

Example:
>>> tux.event.restore()

1.4.4) Methode : tux.event.store

Store all events

Example:
>>> tux.event.store()

1.4.5) Methode : tux.event.wait_bt_pushed

Wait until a tux button is pushed

Parameters:

"time_out" as integer : Time-out in seconds
(9999 = infinite wait)

Return the button value as integer

(HEAD_BT|LEFT_WING_BT|RIGHT_WING_BT|NONE_BT)

Example:

```
>>> tux.event.wait_bt_pushed(10)
```

1.4.6) Methode : tux.event.wait_head_bt_pushed

Wait until head button is pushed

Parameters:

"time_out" as integer : Time-out in seconds
(9999 = infinite wait)

Return a boolean

Example:

```
>>> tux.event.wait_head_bt_pushed(2)
```

1.4.7) Methode : tux.event.wait_head_bt_released

Wait until head button is released

Parameters:

"time_out" as integer : Time-out in seconds
(9999 = infinite wait)

Return a boolean

Example:

```
>>> tux.event.wait_head_bt_released(2)
```

1.4.8) Methode : tux.event.wait_lwing_bt_pushed

Wait until left wing is pushed

Parameters:

"time_out" as integer : Time-out in seconds
(9999 = infinite wait)

Return a boolean

Example:

```
>>> tux.event.wait_lwing_bt_pushed(2)
```

1.4.9) Methode : tux.event.wait_lwing_bt_released

Wait until left wing is released

Parameters:

"time_out" as integer : Time-out in seconds
(9999 = infinite wait)

Return a boolean

Example:

```
>>> tux.event.wait_lwing_bt_released(2)
```

1.4.10) Methode : tux.event.wait_remote_bt

Wait until a specified key of the remote is pressed

Parameters:
"time_out" as integer : Time-out in seconds
(9999 = infinite wait)

Return a boolean

Example:
>>> tux.event.wait_remote_bt(K_OK,2)

1.4.11) Methode : tux.event.wait_rwing_bt_pushed

Wait until right wing is pushed

Parameters:
"time_out" as integer : Time-out in seconds
(9999 = infinite wait)

Return a boolean

Example:
>>> tux.event.wait_rwing_bt_pushed(2)

1.4.12) Methode : tux.event.wait_rwing_bt_released

Wait until right wing is released

Parameters:
"time_out" as integer : Time-out in seconds
(9999 = infinite wait)

Return a boolean

Example:
>>> tux.event.wait_rwing_bt_released(2)

1.4.13) Methode : tux.event.wait_stable_status

Wait for stable status

Parameters:
"DATA_STATUS" as integer : Desired status
"DATA_VALUE" as integer : Desired value
"time_out" as integer : Time-out in seconds
(9999 = infinite wait)
"stable_out" as integer : Time of stable status request in seconds

Return a boolean

Example:
>>> var=tux.event.wait_status(DATAS_STATUS_HEAD_PUSH_SWITCH,1,5,2)

1.4.14) Methode : tux.event.wait_status

Wait until the specified status arrives

Parameters:
"DATA_STATUS" as integer : Desired status
"DATA_VALUE" as integer : Desired value
"time_out" as integer : Time-out in seconds
(9999 = infinite wait)

Return a boolean

Example:
>>> var=tux.event.wait_status(DATAS_STATUS_HEAD_PUSH_SWITCH,1,2)
(see 'tuxapi_const.py' for the complete list of statuses)

1.5) Object : tux.hw (tuxapi_class.TUXhw)

Class which manages the tux hardware

Global variables of this class

"TUX_devices" as tuple : tuple of tux devices as tuple
(param 0 = alsa device name)
(param 1 = sound card)
(param 2 = sound device)
(param 3 = usb bus)
(param 4 = usb device)
(param 5 = usb PID)
(param 6 = usb VID)
"TUX_devices_count" as integer : number of tux devices
"alsa_device" as string : current alsa device name
(is selected on the beginning
of the api with the first tux
sound card)

1.5.1) Methode : tux.hw.alsa_devices_count

Return the number of tux alsa devices

Return an integer

Example:

```
>>> print tux.hw.alsa_devices_count()
```

1.5.2) Methode : tux.hw.alsa_devices_select

Get the alsa device name of a tux sound card

Return a string (ex: 'hw:1,0')

Example:

```
>>> print tux.hw.alsa_devices_select(0)
```

1.5.3) Methode : tux.hw.audio_get_version

Get the version of the audio firmware

Return a tuple : (major version, minor version, update version,
revision, author_id)

Example:

```
>>> print tux.hw.audio_get_version()
```

1.5.4) Methode : tux.hw.behavior_get_version

Get the version of the behavior firmware

Return a tuple : (major version, minor version, update version,
revision, author_id)

Example:

```
>>> print tux.hw.behavior_get_version()
```

1.5.5) Methode : tux.hw.donglerf_get_version

Get the version of the donglerf firmware

Return a tuple : (major version, minor version, update version,
revision, author_id)

Example:

```
>>> print tux.hw.donglerf_get_version()
```

1.5.6) Methode : tux.hw.oss_device

Get the oss compatibility device of the tux sound card

Return a string (ex : '/dev/dsp')

1.5.7) Methode : tux.hw.tuxrf_get_version

Get the version of the tuxrf firmware

Return a tuple : (major version, minor version, update version, revision, author_id)

Example:

```
>>> print tux.hw.tuxrf_get_version()
```

1.6) Object : tux.micro (tuxapi_class.TUXmicro)

Class which manages the microphone functions.

Global variables of this class:

"on_buffer" as EventControl : Event on new buffer from micro

Example of associating a function to 'on_buffer' event:

```
>>> def new_buffer(values):
>>> ... print values
>>> ...
>>> tux.micro.on_buffer.connect(new_buffer)
>>> tux.micro.on()
```

1.6.1) Methode : tux.micro.on

Function to turn on the micro capture.

Example:

```
>>> tux.micro.on()
```

1.6.2) Methode : tux.micro.off

Function to turn off the micro capture.

Example:

```
>>> tux.micro.off()
```

1.6.3) Methode : tux.micro.capture_start

Write the stream in a wav file.

Parameters:

"out_path" as string : path of the wave file
"length" as float : duration of the capture in seconds
When this parameters is omitted, the length is infinite. You must stop the recording with 'tux.micro.capture_stop()'

Examples:

```
>>> tux.micro.capture_start('/home/remi/Desktop/test.wav', 10.0)
>>> tux.micro.capture_start('/home/remi/Desktop/test.wav')
```

1.6.4) Methode : tux.micro.capture_start_free

Write the stream in a wav file.

Parameters:

"out_path" as string : path of the wave file

"length" as float : duration of the capture in seconds
When this parameters is omitted, the length is infinite. You must stop the recording with 'tux.micro.capture_stop()'

Examples:

```
>>> tux.micro.capture_start_free('/home/remi/Desktop/test.wav', 10.0)
>>> tux.micro.capture_start_free('/home/remi/Desktop/test.wav')
```

1.6.5) Methode : tux.micro.capture_stop

Stop the capture of the stream.

1.7) Object : tux.misc (tuxapi_class.TUXmisc)

Class which manages the miscellaneous functions

1.7.1) Methode : tux.misc.doc

Print the docstring of an element of tux api

Parameters:

"element" as methode or class

Examples:

```
>>> tux.misc.doc(tux)
>>> tux.misc.doc(tux.cmd.eyes_on)
```

1.7.2) Methode : tux.misc.build_documentation

Build the documentation of this api

Parameters:

"doc_path" as string : path of the output text file

Example:

```
>>> tux.misc.build_documentation('/home/remi/tuxapi_doc')
```

1.7.3) Methode : tux.misc.print_api_version

To print the version of the API

Example:

```
>>> tux.misc.print_api_version()
```

1.7.4) Methode : tux.misc.simulate_remote_key

To simulate the receiving of a remote key

Parameters:

"key" as integer : remote key

Example:

```
>>> tux.misc.simulate_remote_key(K_OK)
```

1.7.5) Methode : tux.misc.simulate_tcpip_frame

To simulate the receiving of a frame

Parameters:

"frame" as list of 16 char : fake frame

Example:

```
>>> tux.misc.simulate_tcpip_frame()
```

1.8) Object : tux.monitoring (tuxapi_class.TUXmonitoring)

Class which manages the monitoring

Status constants list:

(STATUS_WINGS_MOTOR_BACKWARD,	STATUS_SPIN_MOTOR_BACKWARD,
STATUS_SPIN_MOTOR_FORWARD,	STATUS_MOUTH_OPEN_POSITION,
STATUS_MOUTH_CLOSED_POSITION,	STATUS_HEAD_PUSH_POSITION,
STATUS_CHARGER_INHIBIT_SIGNAL,	STATUS_WINGS_POSITION_SWITCH,
STATUS_MOTOR_FOR_WINGS,	STATUS_LEFT_BLUE_LED,
STATUS_I2C_SDA_LINE,	STATUS_I2C_SCL_LINE,
STATUS_HEAD_MOTOR_FOR_MOUTH,	STATUS_HEAD_MOTOR_FOR_EYES,
STATUS_IR_RECEIVER_SIGNAL,	STATUS_SPIN_POSITION_SWITCH,
STATUS_WINGS_MOTOR_FORWARD,	STATUS_IR_LED,
STATUS_EYES_OPEN_POSITION_SWITCH,	STATUS_EYES_CLOSED_POSITION_SWITCH,
STATUS_LEFT_WING_PUSH,	STATUS_RIGHT_WING_PUSH,
STATUS_POWER_PLUG_SWITCH,	STATUS_HEAD_PUSH_SWITCH,
STATUS_CHARGER_LED,	STATUS_MUTE_STATUS,
STATUS_LIGHT_LEVEL,	STATUS_EYES_POSITION_COUNTER,
STATUS_MOUTH_POSITION_COUNTER,	STATUS_WINGS_POSITION_COUNTER,
STATUS_SPIN_POSITION_COUNTER,	STATUS_RIGHT_BLUE_LED,
STATUS_RF_CONNECTED,	STATUS_IR_CODE,
STATUS_SOUND_COUNT,	STATUS_PONG,
STATUS_BATTERY,	STATUS_MICRO_ENERGY,
)	

1.8.1) Methode : tux.monitoring.insert

Insert a monitoring event.

Parameters:

"status" as integer	: Status index (See status constants list)
"function" as pointer of function	: Function to bind

Returns:

The index of your event in the monitoring manager.
You must save this index if you want removing your event.

Exemple:

```
>>> monitor_idx = tux.monitoring.insert(STATUS_LIGHT_LEVEL, my_function)
```

1.8.2) Methode : tux.monitoring.remove

Remove a monitoring event.

Parameters:

"event_id" as integer	: Index of the event.
-----------------------	-----------------------

Exemple:

```
>>> tux.monitoring.remove(monitor_idx)
```

1.9) Object : tux.status (tuxapi_class.TUXStatus)

Class which manages the request of a status

Global variables of this class:

"rf_connected" as boolean	: State of the droid/dongle connection
---------------------------	--

1.9.1) Methode : tux.status.charger_state

Get the status of the charger

Return 1 for charging and 0 for not charging

Example:

```
>>> var = tux.status.charger_state()
```

1.9.2) Methode : tux.status.flash_status

Get the last sound flash status

Return a tuple with the audio flash status:

(play state, record state, sound number)

play state : Return the sound number or 0 if no sound is played

record state : Return the recording state

sound number : Return the track which is recorded.

Example:

```
>>> (play_state, record_state, sound_number) = tux.status.flash_status()
```

1.9.3) Methode : tux.status.eyes_closed

Get the last state of "eyes closed position switch" status

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.eyes_closed()
```

1.9.4) Methode : tux.status.eyes_counter

Get the number of remaining movements of the eyes

Return an integer (0..255)

Example:

```
>>> var = tux.status.eyes_counter()
```

1.9.5) Methode : tux.status.eyes_motor

Get the last state of "head motor for eyes" status

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.eyes_motor()
```

1.9.6) Methode : tux.status.eyes_opened

Get the last state of "eyes open position switch" status

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.eyes_opened()
```

1.9.7) Methode : tux.status.get

Get a specified status

Parameters:

"DATA_STATUS" as integer : desired status

Return a boolean

(True if the status arrives before 2 seconds)

(The raw of the status response is in tux.tcp_data)

Example:

```
>>> tux.status.get(DATAS_STATUS_WINGS_MOTOR_BACKWARD)
```

1.9.8) Methode : tux.status.head_bt

Get the status of the head button

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.head_bt()
```

1.9.9) Methode : tux.status.ir_led

Get the last state of "IR led" status

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.ir_led()
```

1.9.10) Methode : tux.status.ir_signal

Get the last state of "IR receiver signal" status

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.ir_signal()
```

1.9.11) Methode : tux.status.light_level

Get the last light level

Return an integer (0..1024)

Example:

```
>>> var = tux.status.light_level()
```

1.9.12) Methode : tux.status.battery_level

Get the last battery level

Return a tuple with the battery level and the status:

(level, status)

level: 0..1024

status: True (valid battery level) or False (i.e. a motor was running during the measurement so it's not accurate)

Example:

```
>>> (level, valid) = tux.status.battery_level()
```

1.9.13) Methode : tux.status.lled

Get the state of the left blue led

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.lled()
```

1.9.14) Methode : tux.status.lwing_bt

Get the last state of "left wing push" status

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.lwing_bt()
```

1.9.15) Methode : tux.status.mouth_closed

Get the last state of "mouth closed position" status

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.mouth_closed()
```

1.9.16) Methode : tux.status.mouth_counter

Get the number of remaining movements of the mouth

Return an integer (0..255)

Example:

```
>>> var = tux.status.mouth_counter()
```

1.9.17) Methode : tux.status.mouth_motor

Get the last state of "head motor for mouth" status

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.mouth_motor()
```

1.9.18) Methode : tux.status.mouth_opened

Get the last state of "mouth open position" status

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.mouth_opened()
```

1.9.19) Methode : tux.status.power_plug

Get the last state of "power plug switch" status

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.power_plug()
```

1.9.20) Methode : tux.status.rf_state

Get the last state of the RF status

Return 1 for connected and 0 for disconnected

Example:

```
>>>var = tux.status.rf_state()
```

1.9.21) Methode : tux.status.rled

Get the state of the right blue led

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.rled()
```

1.9.22) Methode : tux.status.rwing_bt

Get the last state of "right wing push" status

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.rwing_bt()
```


1.9.23) Methode : tux.status.sounds_count

Get the number of sounds stored in the flash memory

Return a integer (0..255)

Example:

```
>>> var = tux.status.sounds_count()
```

1.9.24) Methode : tux.status.sound_muted

Get the last state of "tux mute sound" status

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.sound_muted()
```

1.9.25) Methode : tux.status.spin_backward

Get the last state of "spin motor forward" status

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.spin_forward()
```

1.9.26) Methode : tux.status.spin_bt

Get the last state of "spin position switch" status

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.spin_bt()
```

1.9.27) Methode : tux.status.spin_counter

Get the number of remaining movements of 'spinning'

Return an integer (0..255)

Example:

```
>>> var = tux.status.spin_counter()
```

1.9.28) Methode : tux.status.wings_backward

Get the last state of "wings motor backward" status

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.wings_backward()
```

1.9.29) Methode : tux.status.wings_counter

Get the number of remaining movements of the wings

Return an integer (0..255)

Example:

```
>>> var = tux.status.wings_counter()
```

1.9.30) Methode : tux.status.wings_motor

Get the last state of "motor for wings" status

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.wings_motor()
```

1.9.31) Methode : tux.status.wings_forward

Get the last state of "wings motor forward" status

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.wings_forward()
```

1.9.32) Methode : tux.status.wings_bt

Get the last state of "wings position switch" status

Return 1 for on and 0 for off

Example:

```
>>> var = tux.status.wings_bt()
```

1.9.33) Methode : tux.status.get_wings_position_switch

Deprecated : see 'tux.status.wings_bt'

1.9.34) Methode : tux.status.to_string

Convert the current raw statuses to an explicit string

Parameters:

"frame" as tuple of char : raw statuses

Return a string

Example:

```
>>> print tux.status.to_string()
```

1.10) Object : tux.sys (tuxapi_class.TUXsys)

Class which manages the system functions

1.10.1) Methode : tux.sys.add_time_event

Add a time event in the time event handler

Parameters:

"cmd_type" as number : Command type (CT_SHELL|CT_FUNCTION)
"cmd" as string : Command to execute
"year" as integer : (ex : 2006) (9999 : parameter ignored)
"month" as integer : (ex : 12) (99 : parameter ignored)
"day" as integer : (ex : 23) (99 : parameter ignored)
"hour" as integer : (ex : 08) (99 : parameter ignored)
"minute" as integer : (ex : 55) (99 : parameter ignored)
"second" as integer : (ex : 30) (99 : parameter ignored)

Example:

```
>>> tux.sys.add_time_event(CT_SHELL, 'xmms', 9999, 99, 99, 8, 5, 0)
```

1.10.2) Methode : tux.sys.clear_time_events

Clear the time events of the time event handle

Example:

```
>>> tux.sys.clear_time_events()
```

1.10.3) Methode : tux.sys.delayed_function

To execute a function with a delay

Parameters:

"function" as pointer of function : function to execute
"delay" as float : time to wait before executing the function. In seconds

Example:

```
>>> def test():  
...     print "hello world"  
...  
>>> tux.sys.delayed_function(test,10)
```

1.10.4) Methode : tux.sys.delete_time_event

Delete a time event from the time event handler

Parameters:

"cmd_type" as number : Command type (CT_SHELL|CT_FUNCTION)
"cmd" as string : Command to execute
"year" as integer : (ex : 2006) (9999 : parameter ignored)
"month" as integer : (ex : 12) (99 : parameter ignored)
"day" as integer : (ex : 23) (99 : parameter ignored)
"hour" as integer : (ex : 08) (99 : parameter ignored)
"minute" as integer : (ex : 55) (99 : parameter ignored)
"second" as integer : (ex : 30) (99 : parameter ignored)

Example:

```
>>> tux.sys.delete_time_event(CT_SHELL, 'xmms', 9999, 99, 99, 8, 5, 0)
```

1.10.5) Methode : tux.sys.looped_function

Looping on a function with a delay

Parameters:

"function" as pointer of function: function to execute
"delay" as float : time to wait between 2 executions of the function. In seconds

Example:

```
>>> def test():  
...     print "hello world"  
...     return True  
...  
>>> tux.sys.looped_function(test,10)
```

Comment:

While the return of the function is true, the loop remains active

1.10.6) Methode : tux.sys.shell

Execute a shell command

Parameters:

"command" as string : Shell command

Example:

```
>>> tux.sys.shell('ls -al')
```

1.10.7) Methode : tux.sys.shell_free

Execute a shell command in free mode

Parameters:
"command" as string : Shell command

Example:
>>> tux.sys.shell_free('ls -al')

1.10.8) Methode : tux.sys.time

Get the current time in seconds

Return an integer

Example:
>>> var=tux.sys.time()

1.10.9) Methode : tux.sys.wait

Wait a time in seconds

Parameters:
"seconds" as float : Time to wait in seconds

Example:
>>> tux.sys.wait(2.4)

1.11) Object : tux.tts (tuxapi_class.TUXtts)

Class which manages the text to speech

Global variables of this class:

"connected" as boolean : State of the connection to tuxtttsd
"print_status" as boolean : Allow to print the raw statuses
"sound_on" as boolean : Speaking state of the tuxtttsd
"on_connected" as pof : Event on tuxtttsd connected
"on_disconnected" as pof : Event on tuxtttsd disconnected
"on_sound_on" as pof : Event on tts speaking on
"on_sound_off" as pof : Event on tts speaking off
"on_voice_list" as pof : Event on new authorized voices list
"authorized_voices_list" as list of string : List of authorized voices
(pof = pointer of function)

Example of associating a function to an event:

```
>>> def my_function():  
>>>     tux.cmd.mouth_open()  
>>> tux.tts.on_sound_on=my_function
```

1.11.1) Methode : tux.tts.auto_connect

Allow to connect the api to tuxtttsd automatically

Parameters:
"value" as boolean : turn on/off the auto_connect mode
"address" as string : Tcp/IP Host address
 (default = 'localhost')
"port" as integer : Tcp/IP Port number
 (default = 5500)

Examples:
>>> tux.tts.auto_connect(True)
>>> tux.tts.auto_connect(True, '192.168.0.1')
>>> tux.tts.auto_connect(True, '192.168.0.1', 5500)

1.11.2) Methode : tux.tts.connect

Connect tts object to tuxtttsd

Parameters:

"port" as integer : Tcp/IP Port number
(default = 5500)
"address" as string : Tcp/IP Host address
(default = 'localhost')

Examples:

```
>>> tux.tts.connect()  
>>> tux.tts.connect('192.168.0.1')  
>>> tux.tts.connect('localhost',5500)
```

Comment:

The variable "tux.tts.connected" contains the result of this method

1.11.3) Methode : tux.tts.disconnect

Disconnect tts object from tuxttsd

Example:

```
>>> tux.tts.disconnect()
```

1.11.4) Methode : tux.tts.kill_daemon

Kill the tuxttsd

Example:

```
>>> tux.tts.kill_daemon()
```

1.11.5) Methode : tux.tts.pause

Pause the sound

Example:

```
>>> tux.tts.pause()
```

1.11.6) Methode : tux.tts.play

Play the sound if it's in "pause" state

Example:

```
>>> tux.tts.play()
```

1.11.7) Methode : tux.tts.select_voice

Select a speaker voice

Parameters:

"speaker" as integer : speaker id (SPK_FR_MALE|SPK_FR_FEMALE|
SPK_US_MALE|SPK_US_FEMALE)
"pitch" as integer : raised pitch in % (100..330)

Example:

```
>>> tux.tts.select_voice(SPK_FR_MALE,100)
```

1.11.8) Methode : tux.tts.speak

Speak a text with the acapela text to speech engine

Parameters:

"text" as string : text to read

Example:

```
>>> tux.tts.speak('My name is tux! tux droid !')
```

1.11.9) Methode : tux.tts.speak_free

Speak a text with the acapela text to speech engine in free mode

Parameters:
"text" as string : text to read

Example:
>>> tux.tts.speak_free('My name is tux! tux droid !')

1.11.10) Methode : tux.tts.stop

Stop the sound

Example:
>>> tux.tts.stop()

1.12) Object : tux.wav (tuxapi_class.TUXwav)

Class which manages the wav functions.

1.12.1) Methode : tux.wav.play

Play a wave file with tuxtttsd daemon.

Parameters:
"wav_path" as string : Path of the wave file
"begin" as float : Starting index in seconds(Optional)
"end" as float : Ending index in seconds(Optional)

Exemple:
>>> tux.wav.play('/home/tux/test.wav')
>>> tux.wav.play('/home/tux/test.wav', 0., 5.5)

1.12.2) Methode : tux.wav.play_free

Play a wave file with tuxtttsd daemon in free mode.

Parameters:
"wav_path" as string : Path of the wave file
"begin" as float : Starting index in seconds(Optional)
"end" as float : Ending index in seconds(Optional)

Exemple:
>>> tux.wav.play_free('/home/tux/test.wav')
>>> tux.wav.play_free('/home/tux/test.wav', 0., 5.5)

1.12.3) Methode : tux.wav.pause

Pause the current played wave file.

Exemple:
>>> tux.wav.pause()

1.12.4) Methode : tux.wav.stop

Stop the current played wave file.

Exemple:
>>> tux.wav.stop()

1.12.5) Methode : tux.wav._continue

Continue the playing of a paused wave file.

Exemple:
>>> tux.wav._continue()

1.12.6) Methode : tux.wav.get_duration

Get the duration of a wave file.

Parameters:

"wav_path" as string : Path of the wave file

Returns:

The time duration in seconds as float.

Exemple:

```
>>> print tux.wav.get_duration('/home/tux/test.wav')
```