

# Introduction

## Introduction

TODO

## Graphics

### Graphics

Provides graphics operations, such as for drawing pixels and images on the screen.

### Configuration

#### **GRAPHICS\_SET\_GRID**

Enables or disables a visual grid delimiting the screen pixels.

output (yesno) GRAPHICS\_SET\_GRID

- Parameters:
  - **yesno**: new state
    - \* **yes**: enables the grid
    - \* **no**: disables the grid

The ratio between the real and logical dimensions set with **WINDOW\_SET\_SIZE** must be greater then one.

#### **GRAPHICS\_SET\_FONT**

Changes the font for drawing and writing text.

output (text,integer) GRAPHICS\_SET\_FONT

- Parameters:
  - **text**: path for the **.ttf** font filename
  - **integer**: height of the new font in pixels

#### **GRAPHICS\_SET\_RGB**

Changes the color of all subsequent drawing operations.

output (integer,integer,integer) GRAPHICS\_SET\_RGB

- Parameters:

- **integer**: new red component
- **integer**: new green component
- **integer**: new blue component

## **GRAPHICS\_SET\_WRITE\_CURSOR**

Changes the cursor position for writing text with **GRAPHICS\_WRITE** and **GRAPHICS\_WRITELN**.

output (**integer**,**integer**) **GRAPHICS\_SET\_WRITE\_CURSOR**

- Parameters:
  - **integer**: new position in the x-axis
  - **integer**: new position in the y-axis

## **Drawing**

### **GRAPHICS\_CLEAR**

Clears the screen.

output (**none**) **GRAPHICS\_CLEAR**

- Parameters:
  - **none**: no parameters

The clear color is specified with **GRAPHICS\_SET\_RGB**.

### **GRAPHICS\_DRAW\_BMP**

Draws a bitmap image on the screen.

output (**integer**,**integer**,**text**) **GRAPHICS\_DRAW\_BMP**

- Parameters:
  - **integer**: position in the x-axis
  - **integer**: position in the y-axis
  - **text**: path for the **.bmp** image filename

### **GRAPHICS\_DRAW\_PIXEL**

Draws a pixel on the screen.

output (**integer**,**integer**) **GRAPHICS\_DRAW\_PIXEL**

- Parameters:
  - **integer**: position in the x-axis
  - **integer**: position in the y-axis

The drawing color is specified with **GRAPHICS\_SET\_RGB**.

## **GRAPHICS\_DRAW\_LINE**

Draws a line on the screen.

output (integer, integer, integer, integer) GRAPHICS\_DRAW\_LINE;

- Parameters:
  - integer: start position in the x-axis
  - integer: start position in the y-axis
  - integer: end position in the x-axis
  - integer: end position in the y-axis

The drawing color is specified with GRAPHICS\_SET\_RGB.

## **GRAPHICS\_DRAW\_RECT**

Draws a rectangle on the screen.

output (integer, integer, integer, integer) GRAPHICS\_DRAW\_RECT

- Parameters:
  - integer: position in the x-axis
  - integer: position in the y-axis
  - integer: rectangle width
  - integer: rectangle height

The drawing color is specified with GRAPHICS\_SET\_RGB.

## **GRAPHICS\_DRAW\_TEXT**

Draws a text on the screen.

output (int, int, text) GRAPHICS\_DRAW\_TEXT;

- Parameters:
  - integer: position in the x-axis
  - integer: position in the y-axis
  - text: text to draw

The drawing font is specified with GRAPHICS\_SET\_FONT. The drawing color is specified with GRAPHICS\_SET\_RGB.

## **Writing**

### **GRAPHICS\_WRITE**

Writes a text on the screen.

output (text) GRAPHICS\_WRITE;

- Parameters:

- **text**: text to draw

The drawing position is first specified with `GRAPHICS_SET_WRITE_CURSOR`. The cursor advances automatically for the position after the text. The drawing font is specified with `GRAPHICS_SET_FONT`. The drawing color is specified with `GRAPHICS_SET_RGB`.

## **GRAPHICS\_\_WRITELN**

Writes a line of text on the screen.

output (text) `GRAPHICS_WRITELN`;

The drawing position is first specified with `GRAPHICS_SET_WRITE_CURSOR`. The cursor advances automatically for the next line after the text, at the same initial position. The drawing font is specified with `GRAPHICS_SET_FONT`. The drawing color is specified with `GRAPHICS_SET_RGB`.

## **Other**

## **GRAPHICS\_\_SCREENSHOT**

Takes a screen shot.

output (text) `GRAPHICS_SCREENSHOT`

- Parameters:
  - **text**: path for the `.bmp` image filename to generate

# **Input Devices**

## **Input Devices**

Provides input handling, such as for keyboard and mouse.

## **Keyboard**

## **KEY\_PRESS**

input (integer) `KEY_PRESS`

- Occurrences:
  - whenever a keyboard key is pressed
- Payload:
  - **integer**: numeric key code

TODO: key codes

## KEY\_UNPRESS

input (integer) KEY\_UNPRESS

- Occurrences:
  - whenever a keyboard key is released
- Payload:
  - **integer**: numeric key code

TODO: key codes

## Mouse

### MOUSE\_CLICK

input (integer,integer,integer) MOUSE\_CLICK

- Occurrences:
  - whenever a mouse button is pressed
- Payload:
  - **integer**: numeric button code (TODO: left, middle, right?)
  - **integer**: current mouse position in the x-axis
  - **integer**: current mouse position in the y-axis

### MOUSE\_UNCLICK

input (integer,integer,integer) MOUSE\_UNCLICK

- Occurrences:
  - whenever a mouse button is released
- Payload:
  - **integer**: numeric button code (TODO: left, middle, right?)
  - **integer**: current mouse position in the x-axis
  - **integer**: current mouse position in the y-axis

### MOUSE\_MOVE

input (integer,integer) MOUSE\_MOVE

- Occurrences:
  - whenever the mouse moves
- Payload:
  - **integer**: current mouse position in the x-axis
  - **integer**: current mouse position in the y-axis

## Sound

### Sound

Provides sound playback.

#### Configuration

##### **SOUND\_SET\_VOLUME**

Changes the volume of all subsequent sound playbacks.

output (integer) SOUND\_SET\_VOLUME

- Parameters:
  - **integer**: new sound volume in percentage (from 0 to 100)

#### Playback

##### **SOUND\_PLAY**

Plays a sound file.

output (text) SOUND\_PLAY

- Parameters:
  - **text**: path for the sound filename

The playback volume is specified with **SOUND\_SET\_VOLUME**.

## Network

### Network

Provides unreliable broadcast communication between peers.

#### Send

##### **NET\_SEND**

Broadcasts a message to all peers.

output (integer,text) NET\_SEND;

- Parameters:
  - **integer**: number of bytes to transmit

- `byte&&`: stream of bytes

## Receive

### NET\_RECEIVE

Receives all messages from all peers, including itself.

`input (integer,byte&&) NET_RECEIVE;`

- Occurrences:
  - on every received message
- Payload:
  - `integer`: number of received bytes
  - `byte&&`: stream of bytes

## Frame Management

### Frame Management

Manages the game frames, such as for updating animations and redrawing the screen.

### Configuration

#### FRAMES\_\_SET

Enables or disables the generation of periodic `FRAMES_UPDATE` and `FRAMES_REDRAW` inputs to the application.

`output (yesno) FRAMES_SET`

- Parameters:
  - `yesno`: new state
    - \* `yes`: enables the generation of frames
    - \* `no`: disables the generation of frames

#### FRAMES\_SET\_CLEAR\_RGB

Changes the redrawing background color.

`output (integer,integer,integer) FRAMES_SET_CLEAR_RGB`

- Parameters:
  - `integer`: new red component
  - `integer`: new green component

- **integer**: new blue component

On every frame before **FRAMES\_REDRAW**, the screen is cleared with the background color.

The default color is black.

## Update

### **FRAMES\_UPDATE**

input (integer) **FRAMES\_UPDATE**

- Occurrences:
  - on every frame, before **FRAMES\_REDRAW**
- Payload:
  - **integer**: the number of elapsed milliseconds since the previous frame

## Redraw

### **FRAMES\_REDRAW**

input (none) **FRAMES\_REDRAW**

- Occurrences:
  - on every frame, after **FRAMES\_UPDATE**
- Payload:
  - **none**: no payload

Before the input occurs, the screen is cleared with the color set with **FRAMES\_SET\_CLEAR\_RGB**.

# Window Management

## Window Management

Manages the application window.

## Configuration

### **WINDOW\_SET\_SIZE**

Changes the real and logical sizes of the window.

output (integer,integer,integer,integer) **WINDOW\_SET\_SIZE**

- Parameters:



- `integer`: new real width
- `integer`: new real height
- `integer`: new logical width
- `integer`: new logical height

The window is automatically cleared with black.

The arithmetic division between the real and logical dimensions must be exact.

## **WINDOW\_SET\_TITLE**

Changes the title of the window.

output (text) WINDOW\_SET\_TITLE

- Parameters:
  - `text`: new window title

## **License**

## **License**

pico-Céu is distributed under the MIT license reproduced below:

Copyright (C) 2012-2017 Francisco Sant'Anna

Permission is hereby granted, free of charge, to any person obtaining a copy of this software and associated documentation files (the "Software"), to deal in the Software without restriction, including without limitation the rights to use, copy, modify, merge, publish, distribute, sublicense, and/or sell copies of the Software, and to permit persons to whom the Software is furnished to do so, subject to the following conditions:

The above copyright notice and this permission notice shall be included in all copies or substantial portions of the Software.

THE SOFTWARE IS PROVIDED "AS IS", WITHOUT WARRANTY OF ANY KIND, EXPRESS OR IMPLIED, INCLUDING BUT NOT LIMITED TO THE WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE AND NONINFRINGEMENT. IN NO EVENT SHALL THE AUTHORS OR COPYRIGHT HOLDERS BE LIABLE FOR ANY CLAIM, DAMAGES OR OTHER LIABILITY, WHETHER IN AN ACTION OF CONTRACT, TORT OR OTHERWISE, ARISING FROM, OUT OF OR IN CONNECTION WITH THE SOFTWARE OR THE USE OR OTHER DEALINGS IN THE SOFTWARE.