

Arch Game Engine

0.2

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Chapter 1

Hierarchical Index

1.1 Class Hierarchy

This inheritance list is sorted roughly, but not completely, alphabetically:

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Chapter 2

Class Index

2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

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Chapter 3

Class Documentation

3.1 Background Class Reference

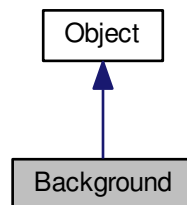
[Object](#) that is a background image that covers the screen.

```
#include <background.h>
```

Inheritance diagram for Background:



Collaboration diagram for Background:



Public Member Functions

- void [setBackground](#) (string file, int w, int h, SDL_Renderer *ren)
Sets the background with a path to the file name, the width and height of the screen, and the renderer.

3.1.1 Detailed Description

[Object](#) that is a background image that covers the screen.

Definition at line 7 of file background.h.

The documentation for this class was generated from the following files:

- background.h
- background.cpp

3.2 Collision Class Reference

Class used for calculating different types of collision between given Objects.

```
#include <collision.h>
```

Public Member Functions

- bool [isTouching](#) ([Object](#) a, [Object](#) b)
Check if two objects are touching.
- bool [outOfBoundsOf](#) ([Object](#) a, [Object](#) b)
Check if two object are not touching.
- bool [isAbove](#) ([Object](#) a, [Object](#) b)
Check if the first object is above the second object.
- bool [isBelow](#) ([Object](#) a, [Object](#) b)
Check if the first object is below the second object.
- bool [isRightOf](#) ([Object](#) a, [Object](#) b)
Check if the first object is to the right of the second object.
- bool [isLeftOf](#) ([Object](#) a, [Object](#) b)
Check if the first object is to the left of the second object.

3.2.1 Detailed Description

Class used for calculating different types of collision between given Objects.

Definition at line 7 of file collision.h.

The documentation for this class was generated from the following files:

- collision.h
- collision.cpp

3.3 Engine Class Reference

Class for declaring an engine, which does basic SDL commands like creating the window and renderer.

```
#include <engine.h>
```

Public Member Functions

- `~Engine ()`
Deconstructs renderer and window and then quits SDL.
- `SDL_Renderer * init (string s, const int &w, const int &h, int flag)`
Create a window with a given name, width, height, and anyother SDL_Window flags.
- `SDL_Renderer * init (string s, const int &w, const int &h, int flag, int it)`
Create a window with a given name, width, height, SDL_Window flags, and specified SDL_Init flags.
- `SDL_Renderer * init (string s, const int &w, const int &h, int flag, int x, int y)`
Create a window with a given name, width, height, SDL_Window flags, and specified x and y coordinate.
- `SDL_Renderer * init (string s, const int &w, const int &h, int flag, int x, int y, int it)`
Create a window with a given name, width, height, SDL_Window flags, specified x and y coordinate, and SDL_Init flags.
- `void setName (string s)`
Set window name.
- `void setPos (int x, int y)`
Set window position.
- `void setSize (int w, int y)`
Set window size.
- `SDL_Renderer * getRenderer ()`
Returns screen renderer.
- `void setColor (Uint8 r, Uint8 g, Uint8 b)`
Sets SDL color.
- `void loopStart ()`
Call this at the beginning of a loop to initilaize the loop.
- `void render ()`
Call this at the end of the game loop to render.
- `bool FPS () const`
Get fps.
- `void update ()`
Update loop time.
- `void setBackground (Background b)`
Set background.
- `void setBackground (string filename)`
Set background with filename.
- `Background getBackground () const`
Get background.
- `void drawBackground ()`
Draw background.
- `void draw (Object obj)`
Draw an object on the screen.
- `void draw (vector< Object > objs)`
Draw a vector of Objects.
- `void draw (Object obj, int key)`

- Draw an object with a pass key before/during splash.*

 - void `draw` (`Level` lvl)

Draw the level.
- void `splash` ()

Calls splashscreen at the beginning of the game. This is automatically called unless deactivated.
- void `bypassSplash` (int key)

Deactivates the splashscreen, requires key.
- bool `hasSplashed` ()

Check if the splashscreen has occurred.
- bool `runCustomSplash` ()

Run custom splashscreen. This is automatically called after splash if there is a custom splashscreen.
- void `customSplash` (string file, double time, int w, int h)

Create a custom game splashscreen to be shown after the engine splashscreen by passing in the path to the image, the duration for it be displayed, and the size of the image.
- void `debugMode` (bool d)

Active debugger with Boolean.

3.3.1 Detailed Description

Class for declaring an engine, which does basic SDL commands like creating the window and renderer.

Definition at line 28 of file engine.h.

The documentation for this class was generated from the following files:

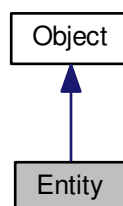
- engine.h
- engine.cpp

3.4 Entity Class Reference

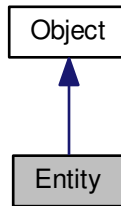
Class for storing health, emotion, team, etc. of an `Object`.

```
#include <entity.h>
```

Inheritance diagram for Entity:



Collaboration diagram for Entity:



Public Member Functions

- double `getHealth` () const
Get `Entity`'s health.
- void `setHealth` (double h)
Set the `Entity`'s health. If the health is higher then the max health it will set it to the max health.
- double `getMaxHealth` () const
Get max health.
- void `setMaxHealth` (double mh)
Set max health.
- void `damage` (double d)
Deal damage. Subtracted from health. If health is less then zero it kills the entity.
- void `heal` (double h)
Give health to the `Entity`.
- int `getEmotion` () const
Get current emotion state.
- void `setEmotion` (int e)
Set current emotion state.
- int `getTeam` () const
Get `Entity`'s team.
- void `setTeam` (int t)
Set `Entity`'s team.
- bool `isActive` () const
Check if `Entity` is active.
- void `kill` ()
Sets health to zero and deactivates the `Entity`.
- void `deactivate` ()
Sets active to false.
- void `activate` ()
Sets active to true.
- void `checkDisplayable` (Object screen)
Checks if an the `Entity` is in the current screen by passing the screen to it.
- SDL_Rect `getDetect` () const
Returns the detection radius.
- void `setDetect` (SDL_Rect d)

- Sets the detection with another SDL_Rect.*
 - void [setDetectRange](#) (int r)
 - Sets the detection radius with a single given distance.*
 - void [setDetectRange](#) (int w, int h)
 - Sets the detection radius with two given distances in both directions.*

3.4.1 Detailed Description

Class for storing health, emotion, team, etc. of an [Object](#).

Definition at line 9 of file entity.h.

The documentation for this class was generated from the following files:

- entity.h
- entity.cpp

3.5 Image Class Reference

Class for loading in SDL Textures.

```
#include <image.h>
```

Public Member Functions

- void [loadImage](#) (string file, SDL_Renderer *ren)
 - Load in either a BMP or PNG file with the path and renderer.*
- void [loadPNG](#) (string file, SDL_Renderer *ren)
 - Load in a PNG image with the path to the PNG file and the renderer.*
- void [loadBMP](#) (string file, SDL_Renderer *ren)
 - Load in a BMP image with the path to the BMP file and the renderer.*
- SDL_Texture * [getTexture](#) ()
 - Get SDL_Texture.*
- void [setImage](#) (SDL_Texture *t)
 - Set new, preloaded texture, to [Image](#).*
- string [getFile](#) () const
 - Get path file of the image.*
- void [setFile](#) (string f)
 - Set path file to the image.*

3.5.1 Detailed Description

Class for loading in SDL Textures.

Definition at line 11 of file image.h.

The documentation for this class was generated from the following files:

- image.h
- image.cpp

3.6 Input Class Reference

Class for checking and storing keyboard and mouse input.

```
#include <input-tmp.h>
```

Public Member Functions

- void `logPress ()`
Log all current keys and buttons being pressed.
- bool `checkKey (int k)`
Check if a key has been pressed using a given key from this class. Ex: `Input i; i.checkKey(i.up);`.
- bool `reset ()`
Reset all pressed keystrokes and other inputs to false. Automatically down at the beginning of each `logPress()`.

Public Attributes

- int `left`
Log ID for left.
- int `right`
Log ID for right.
- int `up`
Log ID for up.
- int `down`
Log ID for down.
- int `q`
Log ID for q.
- int `w`
Log ID for w.
- int `e`
Log ID for e.
- int `r`
Log ID for r.
- int `t`
Log ID for t.
- int `y`
Log ID for y.
- int `u`
Log ID for u.
- int `i`
Log ID for i.
- int `o`
Log ID for o.
- int `p`
Log ID for p.
- int `a`
Log ID for a.
- int `s`
Log ID for s.

- int [d](#)
Log ID for d.
- int [f](#)
Log ID for f.
- int [g](#)
Log ID for g.
- int [h](#)
Log ID for h.
- int [j](#)
Log ID for j.
- int [k](#)
Log ID for k.
- int [l](#)
Log ID for l.
- int [z](#)
Log ID for z.
- int [x](#)
Log ID for x.
- int [c](#)
Log ID for c.
- int [v](#)
Log ID for v.
- int [b](#)
Log ID for b.
- int [n](#)
Log ID for n.
- int [m](#)
Log ID for m.
- int [lshift](#)
Log ID for left shift.
- int [rshift](#)
Log ID for right shift.
- int [shift](#)
Shift ID for shift.
- int [quit](#)
Log ID for quit.
- int [esc](#)
Log ID for esc.
- int [mouseleft](#)
Log ID for left mouse click.
- int [mousemiddle](#)
Log ID for middle mouse click.
- int [mouseright](#)
Log ID for right mouse click.
- int [mouseup](#)
Log ID for scroll up on mouse wheel.
- int [mousedown](#)
Log ID for scroll down on mouse wheel.
- int [mousex](#)
Log ID for mouse x coordinate.
- int [mousey](#)
Log ID for mouse y coordinate.

3.6.1 Detailed Description

Class for checking and storing keyboard and mouse input.

Definition at line 9 of file input-tmp.h.

The documentation for this class was generated from the following files:

- input-tmp.h
- input-tmp.cpp

3.7 Level Class Reference

This class stores a [Stage](#) and Objects and can move them and display them.

```
#include <level.h>
```

Public Member Functions

- void [create](#) ()
Create the [Level](#) based on the given stage.
- void [setStage](#) ([Stage](#) s)
Give a [Stage](#) to the [Level](#).
- void [setStage](#) ([Map](#) m, [Tileset](#) t)
Create a [Stage](#) for the [Level](#) by giving a [Map](#) and a [Tileset](#).
- void [setScale](#) (int w, int h)
Scale the [Level](#) by giving it the width and height to scale by.
- void [setScale](#) (int s)
Scale the [Level](#) by giving it a single integer to scale by.
- void [calcPos](#) ()
Calculate the position of the level based on coordinates.
- vector< [Tile](#) > [getTilesToRender](#) ()
Return the Tiles that are currently on the screen.
- void [move](#) (int mx, int my)
Move the screen by passing in how much to move on the x and y coordinates.
- void [setCoord](#) (double x, double y)
Set the coordinate for the screen with a given x and y.
- void [setX](#) (double x)
Set the x coordinate.
- void [setY](#) (double y)
Set the y coordinate.
- double [getX](#) () const
Get the x coordinate.
- double [getY](#) () const
Get the y coordinate.
- void [setScreenSize](#) (int w, int h)
Set the size of the screen by passing in the width and height.
- void [setPrecise](#) (bool p)
Active precise if you want the coordinates in a map file to go to that exact pixel, or leave it off if you want it to go to that [Tile](#).

3.7.1 Detailed Description

This class stores a [Stage](#) and Objects and can move them and display them.

Definition at line 9 of file level.h.

The documentation for this class was generated from the following files:

- level.h
- level.cpp

3.8 Map Class Reference

This class takes in a file and loads it in for the map.

```
#include <map.h>
```

Public Member Functions

- void [loadMap](#) (string filename)
Read in map file with given path to the file.
- int [getX](#) () const
Get the start x coordinate found in the file.
- int [getY](#) () const
Get the start y coordinate found in the file.
- vector< vector< int > > [getMap](#) () const
Get the vector of integers found in the file.

3.8.1 Detailed Description

This class takes in a file and loads it in for the map.

Definition at line 10 of file map.h.

The documentation for this class was generated from the following files:

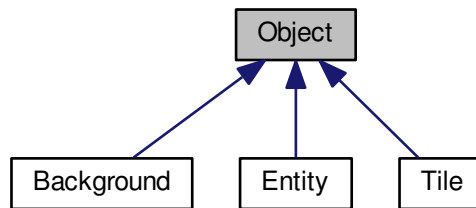
- map.h
- map.cpp

3.9 Object Class Reference

This class stores information for an [Object](#) in the game.

```
#include <object.h>
```

Inheritance diagram for [Object](#):



Public Member Functions

- void [setDisplayable](#) (bool d)
This sets if you want the [Object](#) to be visible on the screen by passing in a boolean.
- bool [isDisplayable](#) ([Object](#) screen)
Check if the [Object](#) is displayable by seeing if it is in a given screen.
- virtual void [checkDisplayable](#) ([Object](#) screen)
Checks if the [Object](#) is in the given screen.
- void [setCoord](#) (double x, double y)
Set the coordinate of the [Object](#) with a given x and y.
- void [setX](#) (double sx)
Set the x coordinate with a given x.
- void [setY](#) (double sy)
Set the y coordinate with a given y.
- void [move](#) (double x, double y)
Move along the x and y coordinate with a given x and y amount.
- void [moveX](#) (double mx)
Move along the x coordinate with a given x amount.
- void [moveY](#) (double my)
Move along the y coordinate with a given y amount.
- double [getX](#) () const
Get the current x coordinate.
- double [getY](#) () const
Get the current y coordinate.
- [Image](#) [getImage](#) () const
Get the [Object](#)'s [Image](#).
- void [setImage](#) ([Image](#) i)
Set the [Object](#)'s [Image](#) with a given [Image](#).
- void [setImage](#) (string file, SDL_Renderer *ren)

- Give the path and renderer to create the *Object's Image*.

 - double **getAngle** () const
 - Get the *Object's angle*.
 - void **setAngle** (double a)
 - Set the *angle*.
 - void **center** (int w, int h)
 - Center the *Object* based on a width and height.
 - SDL_Rect **getFrame** () const
 - Get the frame that the *Object* parses from the *Image*.
 - SDL_Rect **getDest** () const
 - Get the destination for the *Object* to be displayed on screen.
 - SDL_Rect **getPos** () const
 - Get the position of the *Object* in the world.
 - void **setFrame** (SDL_Rect i)
 - Set the frame with a given *SDL_Rect*.
 - void **setDest** (SDL_Rect i)
 - Set the destination with a given *SDL_Rect*.
 - void **setPos** (SDL_Rect i)
 - Set the position with a given *SDL_Rect*.
 - void **setFrame** (int x, int y, int w, int h)
 - Set the frame with a given *x* and *y* coordinate and width and height.
 - void **setFrameCoord** (int x, int y)
 - Set the *x* and *y* coordinate of the frame.
 - void **setFrameSize** (int w, int h)
 - Set the size of the frame with a width and height.
 - void **setFrameX** (int x)
 - Set the *x* coordinate of the frame.
 - void **setFrameY** (int y)
 - Set the *y* coordinate of the frame.
 - void **setFrameW** (int w)
 - void **setFrameH** (int h)
 - int **getFrameX** () const
 - int **getFrameY** () const
 - int **getFrameW** () const
 - int **getFrameH** () const
 - void **setDest** (int x, int y, int w, int h)
 - void **setDestCoord** (int x, int y)
 - void **setDestSize** (int w, int h)
 - void **setDestX** (int x)
 - void **setDestY** (int y)
 - void **setDestW** (int w)
 - void **setDestH** (int h)
 - int **getDestX** () const
 - int **getDestY** () const
 - int **getDestW** () const
 - int **getDestH** () const
 - void **setPos** (int x, int y, int w, int h)
 - void **setPosCoord** (int x, int y)
 - void **setPosSize** (int w, int h)
 - void **setPosX** (int x)
 - void **setPosY** (int y)
 - void **setPosW** (int w)

- void **setPosH** (int h)
- int **getPosX** () const
- int **getPosY** () const
- int **getPosW** () const
- int **getPosH** () const
- void **moveFrame** (int x, int y)
- void **moveFrameX** (int x)
- void **moveFrameY** (int y)
- void **moveDest** (int x, int y)
- void **moveDestX** (int x)
- void **moveDestY** (int y)
- void **movePos** (int x, int y)
- void **movePosX** (int x)
- void **movePosY** (int y)
- void **setName** (string s)
- string **getName** ()

3.9.1 Detailed Description

This class stores information for an [Object](#) in the game.

Definition at line 10 of file object.h.

The documentation for this class was generated from the following files:

- object.h
- object.cpp

3.10 Physics Class Reference

Class for doing physics functions.

```
#include <physics-tmp.h>
```

Public Member Functions

- [Object](#) **moveTowards** ([Object](#) cur, [Object](#) des)
Returns modified first [Object](#) that is moving towards the second object (I THINK).

3.10.1 Detailed Description

Class for doing physics functions.

Definition at line 23 of file physics-tmp.h.

The documentation for this class was generated from the following files:

- physics-tmp.h
- physics-tmp.cpp

3.11 Stage Class Reference

The [Stage](#) class stores a [Map](#) and [Tileset](#).

```
#include <stage.h>
```

Public Member Functions

- void [createStage](#) ([Map](#) m, [Tileset](#) t)
Create a stage by passing in a [Map](#) and [Tileset](#).
- void [createStage](#) (string filename, string name, string img, [SDL_Renderer](#) *ren, int width, int height, int r, int count)
Create a stage by passing in the maps file, a name for the tiles, file of the tile image, the renderer, width and height of a tile, what row of the image the tiles are onem and how many tiles there are.
- void **createStage** (string filename, string name, string img, [SDL_Renderer](#) *ren, int width, int height, int r, int rcount, int count)
- void **createStage** (string filename, int startid, string name, string img, [SDL_Renderer](#) *ren, int width, int height, int r, int count)
- void **createStage** (string filename, int startid, string name, string img, [SDL_Renderer](#) *ren, int width, int height, int r, int rcount, int count)
- void [setMap](#) ([Map](#) m)
Set the [Map](#) by passing in a [Map](#).
- [Map](#) [setMap](#) (string filename)
Load in a new map by passing in the map file.
- [Map](#) [getMap](#) () const
Get the [Map](#).
- void [setTileset](#) ([Tileset](#) t)
Set the [Tileset](#) with a given [Tileset](#).
- [Tileset](#) **setTileset** (string name, string img, [SDL_Renderer](#) *ren, int width, int height, int r, int count)
- [Tileset](#) **setTileset** (string name, string img, [SDL_Renderer](#) *ren, int width, int height, int r, int rcount, int count)
- [Tileset](#) **setTileset** (int startid, string name, string img, [SDL_Renderer](#) *ren, int width, int height, int r, int count)
- [Tileset](#) **setTileset** (int startid, string name, string img, [SDL_Renderer](#) *ren, int width, int height, int r, int rcount, int count)
- [Tileset](#) [getTileset](#) () const
Get the [Tileset](#).

3.11.1 Detailed Description

The [Stage](#) class stores a [Map](#) and [Tileset](#).

Definition at line 8 of file stage.h.

The documentation for this class was generated from the following files:

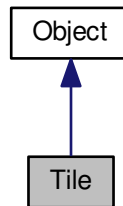
- stage.h
- stage.cpp

3.12 Tile Class Reference

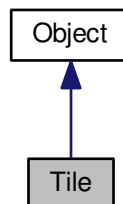
An [Object](#) class that stores the a tile value and name.

```
#include <tile.h>
```

Inheritance diagram for Tile:



Collaboration diagram for Tile:



Public Member Functions

- void [setValue](#) (int v)
Set value of the tile. This is used when reading from a map file, etc.
- int [getValue](#) () const
Get the value of the [Tile](#).
- void [setSolid](#) ()
Set if the [Tile](#) is solid.
- void [setPassable](#) ()
Set if the [Tile](#) is passable (not solid).
- bool [isSolid](#) () const
Check if the [Tile](#) is solid.

3.12.1 Detailed Description

An [Object](#) class that stores the a tile value and name.

Definition at line 7 of file tile.h.

The documentation for this class was generated from the following files:

- tile.h
- tile.cpp

3.13 Tileset Class Reference

Class for loading in multiple Tiles.

```
#include <tileset.h>
```

Public Member Functions

- `vector< Tile > getTileset () const`
- `SDL_Rect getFrame (int i)`
- `vector< Tile > create (string name, string img, SDL_Renderer *ren, int width, int height, int r, int count)`
Load in a map file with the name for all the tiles, the path to the map file, path to the tileset image, the SDL renderer, width and height of a tile, row to begin from on the image, how many tiles there are in the image.
- `vector< Tile > create (string name, string img, SDL_Renderer *ren, int width, int height, int r, int rcount, int count)`
Load a map with a given name for the tiles, the file path to the map, the path to the tileset image, SDL renderer, width and height of a tile, row to begin on in the image, how many tiles on a certain row in the image, total amount of tiles in the image.
- `vector< Tile > create (int startid, string name, string img, SDL_Renderer *ren, int width, int height, int r, int count)`
Load in a map file with the name for all the tiles, the path to the map file, path to the tileset image, the SDL renderer, width and height of a tile, row to begin from on the image, how many tiles there are in the image.
- `vector< Tile > create (int startid, string name, string img, SDL_Renderer *ren, int width, int height, int r, int rcount, int count)`
Load a map with a given name for the tiles, the file path to the map, the path to the tileset image, SDL renderer, width and height of a tile, row to begin on in the image, how many tiles on a certain row in the image, total amount of tiles in the image.
- `void addTile (Tile t)`
Push [Tile](#) in tile with given [Tile](#).
- `Tile addTile (string name, string file, SDL_Renderer *ren, int value, int r, int c, int width, int height)`
Generate and push [Tile](#) with tile name, path tot he tile image, SDL renderer, tile value, row and columg the tile as on in the image, the tiles width and height.
- `Tile addTile (string name, string file, SDL_Renderer *ren, int value, int width, int height)`
Generate and push [Tile](#) with a given name, path to image file, SDL renderer, given value, and tile width and height.
- `Tile addTile (string name, string file, SDL_Renderer *ren, int value, int size)`
Generate and push [Tile](#) with a given name, path to the image, SDL renderer, value, and size (used for width and height).
- `void setAngle (int ang)`
Set the angle of all the tiles. Calls pushAng().
- `void setSolid ()`
- `void setSolid (int t)`
- `void setSolid (int s, int e)`
- `void setPassable ()`
- `void setPassable (int t)`
- `void setPassable (int s, int e)`
- `void setName (string n, int id)`

3.13.1 Detailed Description

Class for loading in multiple Tiles.

Definition at line 8 of file tileset.h.

The documentation for this class was generated from the following files:

- tileset.h
- tileset.cpp

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