

nulocks-core

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# Chapter 1

## nulocks-core

nulocks - NUMerical bLOCKS is a modular and customizable clone of 2048 game in C++. This is a repository with core engine of the game.

The main purpose of [Nulocks](#) is to provide an engine of a game similar to original 2048 and an option to visualize it in any interface you want to implement it in. This repository contains this very engine that can be used to implement 2048 and/or use extended [Nulocks](#) possibilities such as determined by user size of the board and ending level of block in any user interface you want.

If you want to contribute, start with the documentation at: <http://www.phitherek.mooo.com/doxy/nulocks-core/>. I would be happy to see [Nulocks](#) implemented for many platforms in many graphical libraries.

### Installation

```
make
```

```
sudo make install
```

Make macros: LIBPREFIX - determines a directory in which the shared library should be placed, default: /usr/lib, INCLUDEPREFIX - determines a directory in which the header files should be placed, default: /usr/include. Use them with the install command.

### Usage

In your program include the main header file:

```
#include "nulocks-core/Board.h"
```

Compile your program with:

```
g++ -o your_executable your_source.cpp -lnulockscore
```

### Changelog

- v. 0.1 - Initial version of the engine.
- v. 0.2 - Slightly changed game logic to reflect more of 2048 game's logic.
- v. 0.2.1 - Makefile should generate library version 0.2 and not 0.1 (naming error resolved). Added uninstall action to Makefile.



## Chapter 2

# Namespace Index

### 2.1 Namespace List

Here is a list of all documented namespaces with brief descriptions:

<a href="#">Nulocks</a>	A global namespace for all <a href="#">Nulocks</a> game components . . . . .	9
<a href="#">Nulocks::Core</a>	A namespace for <a href="#">Nulocks</a> core game engine . . . . .	9





## Chapter 3

# Class Index

### 3.1 Class List

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

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A class representing a block on the game board . . . . .	11
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A class that represents <a href="#">Nulocks</a> board . . . . .	12



## Chapter 4

# File Index

### 4.1 File List

Here is a list of all documented files with brief descriptions:

<a href="#">Block.h</a>	A file that contains the class representing a block on the game board . . . . .	17
<a href="#">Board.h</a>	A file that contains main core engine class of <a href="#">Nulocks</a> - modular and customizable clone of 2048 game . . . . .	17



## Chapter 5

# Namespace Documentation

### 5.1 Nulocks Namespace Reference

A global namespace for all [Nulocks](#) game components.

#### Namespaces

- [Core](#)  
*A namespace for [Nulocks](#) core game engine.*

#### 5.1.1 Detailed Description

A global namespace for all [Nulocks](#) game components.

### 5.2 Nulocks::Core Namespace Reference

A namespace for [Nulocks](#) core game engine.

#### Classes

- class [Block](#)  
*A class representing a block on the game board.*
- class [Board](#)  
*A class that represents [Nulocks](#) board.*

#### 5.2.1 Detailed Description

A namespace for [Nulocks](#) core game engine.



## Chapter 6

# Class Documentation

### 6.1 Nulocks::Core::Block Class Reference

A class representing a block on the game board.

```
#include <Block.h>
```

#### Public Member Functions

- [Block](#) ()  
*Construct an empty block.*
- [~Block](#) ()  
*Destroy the block.*
- void [setMoved](#) ()  
*Indicate the block as moved this turn.*
- void [unsetMoved](#) ()  
*Indicate the block as not moved this turn.*
- bool [wasMoved](#) ()  
*Check if the block was moved this turn.*
- int [getValue](#) ()  
*Get block value.*
- int [getLevel](#) ()  
*Get block level.*
- void [levelUp](#) ()  
*Increase level of the block.*
- void [empty](#) ()  
*Make the block empty.*
- bool [isEmpty](#) ()  
*Check if the block is empty.*
- void [setLevel](#) (int level)  
*Set level of the block.*

#### 6.1.1 Detailed Description

A class representing a block on the game board.

## 6.1.2 Member Function Documentation

### 6.1.2.1 `int Nulocks::Core::Block::getLevel ( )`

Get block level.

#### Returns

Level of the block.

### 6.1.2.2 `int Nulocks::Core::Block::getValue ( )`

Get block value.

#### Returns

Value of the block.

### 6.1.2.3 `bool Nulocks::Core::Block::isEmpty ( )`

Check if the block is empty.

#### Returns

True if the block is empty, false otherwise.

### 6.1.2.4 `void Nulocks::Core::Block::setLevel ( int level )`

Set level of the block.

#### Parameters

<i>level</i>	Level of the block.
--------------	---------------------

### 6.1.2.5 `bool Nulocks::Core::Block::wasMoved ( )`

Check if the block was moved this turn.

#### Returns

True if block was moved this turn, false otherwise.

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

- [Block.h](#)
- [Block.cpp](#)

## 6.2 Nulocks::Core::Board Class Reference

A class that represents [Nulocks](#) board.

```
#include <Board.h>
```



## Public Member Functions

- **Board** (int size=4, int winpower=11)  
*Initializes the board for the new game.*
- **~Board** ()  
*Destroys the board, frees the memory.*
- **Board** (const **Board** &cpy)  
*A copy constructor.*
- void **moveUp** ()  
*Performs a move upwards and starts new turn.*
- void **moveDown** ()  
*Performs a move downwards and starts new turn.*
- void **moveLeft** ()  
*Performs a move to the left and starts new turn.*
- void **moveRight** ()  
*Performs a move to the right and starts new turn.*
- bool **gameInProgress** ()  
*Checks if game is in progress.*
- bool **gameWon** ()  
*Checks if game has been won.*
- bool **gameLost** ()  
*Checks if game has been lost.*
- int **getScore** ()  
*Returns the current score.*
- int **getWinPower** ()  
*Returns the power of 2 required to win the game.*
- int **getSize** ()  
*Returns size of the board.*
- void **getRepresentation** (int \*\*\*repr)  
*Returns representation of the board as an array of integers.*

### 6.2.1 Detailed Description

A class that represents **Nulocks** board.

### 6.2.2 Constructor & Destructor Documentation

#### 6.2.2.1 Nulocks::Core::Board::Board ( int size = 4, int winpower = 11 )

Initializes the board for the new game.

Parameters

<i>size</i>	Size of the board, defaults to 4 as in original 2048.
<i>winpower</i>	Power of 2 to get to win the game. Defaults to 11, as in original 2048 game.

#### 6.2.2.2 Nulocks::Core::Board::Board ( const Board & cpy )

A copy constructor.

## Parameters

<i>cpy</i>	A <a href="#">Board</a> object to be copied.
------------	--

## 6.2.3 Member Function Documentation

### 6.2.3.1 `bool Nulocks::Core::Board::gameInProgress ( )`

Checks if game is in progress.

## Returns

True if game is in progress, false otherwise.

### 6.2.3.2 `bool Nulocks::Core::Board::gameLost ( )`

Checks if game has been lost.

## Returns

True if game has been lost, false otherwise.

### 6.2.3.3 `bool Nulocks::Core::Board::gameWon ( )`

Checks if game has been won.

## Returns

True if game has been won, false otherwise.

### 6.2.3.4 `void Nulocks::Core::Board::getRepresentation ( int *** repr )`

Returns representation of the board as an array of integers.

## Parameters

<i>in, out</i>	<i>repr</i>	Takes address of a two-dimensional array of integers with the same size as the board. Returns integer representation of the board to this array. Memory allocation and freeing must be handled outside this method.
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### 6.2.3.5 `int Nulocks::Core::Board::getScore ( )`

Returns the current score.

## Returns

Current score of the player.

### 6.2.3.6 `int Nulocks::Core::Board::getSize ( )`

Returns size of the board.

## Returns

Size of the board.

### 6.2.3.7 int Nulocks::Core::Board::getWinPower ( )

Returns the power of 2 required to win the game.

#### Returns

Power of 2 to get to win the game.

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

- [Board.h](#)
- Board.cpp



# Chapter 7

## File Documentation

### 7.1 Block.h File Reference

A file that contains the class representing a block on the game board.

#### Classes

- class [Nulocks::Core::Block](#)  
*A class representing a block on the game board.*

#### Namespaces

- [Nulocks](#)  
*A global namespace for all [Nulocks](#) game components.*
- [Nulocks::Core](#)  
*A namespace for [Nulocks](#) core game engine.*

#### 7.1.1 Detailed Description

A file that contains the class representing a block on the game board.

#### Author

Phitherek\_

#### Date

2014

#### Version

0.1

### 7.2 Board.h File Reference

A file that contains main core engine class of [Nulocks](#) - modular and customizable clone of 2048 game.

```
#include "Block.h"
```

## Classes

- class [Nulocks::Core::Board](#)  
*A class that represents [Nulocks](#) board.*

## Namespaces

- [Nulocks](#)  
*A global namespace for all [Nulocks](#) game components.*
- [Nulocks::Core](#)  
*A namespace for [Nulocks](#) core game engine.*

### 7.2.1 Detailed Description

A file that contains main core engine class of [Nulocks](#) - modular and customizable clone of 2048 game.

#### Author

Phitherek\_

#### Date

2014

#### Version

0.1

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