

# Software Documentation

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<b>1 Hierarchical Index</b>	<b>1</b>
1.1 Class Hierarchy	1
<b>2 Class Index</b>	<b>3</b>
2.1 Class List	3
<b>3 File Index</b>	<b>5</b>
3.1 File List	5
<b>4 Class Documentation</b>	<b>7</b>
4.1 Flow Class Reference	7
4.1.1 Constructor & Destructor Documentation	7
4.1.1.1 ~Flow()	8
4.1.2 Member Function Documentation	8
4.1.2.1 expression()	8
4.1.2.2 getName()	8
4.1.2.3 getSystemBegin()	8
4.1.2.4 getSystemEnd()	8
4.1.2.5 getValue()	8
4.1.2.6 setName()	9
4.1.2.7 setSystemBegin()	9
4.1.2.8 setSystemEnd()	9
4.1.2.9 setValue()	9
4.2 FlowImplementation Class Reference	10
4.2.1 Detailed Description	11
4.2.2 Constructor & Destructor Documentation	11
4.2.2.1 ~FlowImplementation()	11
4.2.2.2 FlowImplementation()	11
4.2.3 Member Function Documentation	12
4.2.3.1 expression()	12
4.2.3.2 getName()	12
4.2.3.3 getSystemBegin()	12
4.2.3.4 getSystemEnd()	12
4.2.3.5 getValue()	12
4.2.3.6 operator=()	12
4.2.3.7 setName()	13
4.2.3.8 setSystemBegin()	13
4.2.3.9 setSystemEnd()	13
4.2.3.10 setValue()	14
4.2.4 Member Data Documentation	14
4.2.4.1 name	14
4.2.4.2 systemBegin	14
4.2.4.3 systemEnd	14

4.2.4.4 value	15
4.3 Model Class Reference	15
4.3.1 Constructor & Destructor Documentation	15
4.3.1.1 ~Model()	15
4.3.2 Member Function Documentation	16
4.3.2.1 add() [1/2]	16
4.3.2.2 add() [2/2]	16
4.3.2.3 getName()	16
4.3.2.4 getTime()	16
4.3.2.5 setName()	16
4.3.2.6 setTime()	17
4.3.2.7 simulate()	17
4.4 ModelImplementation Class Reference	17
4.4.1 Detailed Description	18
4.4.2 Constructor & Destructor Documentation	18
4.4.2.1 ~ModelImplementation()	18
4.4.2.2 ModelImplementation()	18
4.4.3 Member Function Documentation	19
4.4.3.1 add() [1/2]	19
4.4.3.2 add() [2/2]	19
4.4.3.3 getName()	19
4.4.3.4 getTime()	20
4.4.3.5 operator=()	20
4.4.3.6 setName()	20
4.4.3.7 setTime()	20
4.4.3.8 simulate()	21
4.4.4 Member Data Documentation	21
4.4.4.1 flows	21
4.4.4.2 name	21
4.4.4.3 systems	21
4.4.4.4 time	22
4.5 System Class Reference	22
4.5.1 Constructor & Destructor Documentation	22
4.5.1.1 ~System()	22
4.5.2 Member Function Documentation	22
4.5.2.1 getName()	23
4.5.2.2 getValue()	23
4.5.2.3 setName()	23
4.5.2.4 setValue()	23
4.6 SystemImplementation Class Reference	24
4.6.1 Detailed Description	25
4.6.2 Constructor & Destructor Documentation	25

4.6.2.1 ~SystemImplementation()	25
4.6.2.2 SystemImplementation()	25
4.6.3 Member Function Documentation	25
4.6.3.1 getName()	25
4.6.3.2 getValue()	26
4.6.3.3 operator=()	26
4.6.3.4 setName()	26
4.6.3.5 setValue()	26
4.6.4 Member Data Documentation	27
4.6.4.1 name	27
4.6.4.2 value	27
<b>5 File Documentation</b>	<b>29</b>
5.1 src/lib/Flow.h File Reference	29
5.2 Flow.h	30
5.3 src/lib/FlowImplementation.cpp File Reference	31
5.4 src/lib/FlowImplementation.h File Reference	32
5.5 FlowImplementation.h	32
5.6 src/lib/Model.h File Reference	33
5.7 Model.h	34
5.8 src/lib/ModelImplementation.cpp File Reference	35
5.9 src/lib/ModelImplementation.h File Reference	37
5.10 ModelImplementation.h	38
5.11 src/lib/System.h File Reference	38
5.12 System.h	39
5.13 src/lib/SystemImplementation.cpp File Reference	40
5.14 src/lib/SystemImplementation.h File Reference	40
5.15 SystemImplementation.h	41
<b>Index</b>	<b>43</b>



# Chapter 1

## Hierarchical Index

### 1.1 Class Hierarchy

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

Flow . . . . .	7
FlowImplementation . . . . .	10
Model . . . . .	15
ModelImplementation . . . . .	17
System . . . . .	22
SystemImplementation . . . . .	24





## Chapter 2

# Class Index

### 2.1 Class List

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

<a href="#">Flow</a> . . . . .	7
<a href="#">FlowImplementation</a> . . . . .	10
<a href="#">Model</a> . . . . .	15
<a href="#">ModellImplementation</a> . . . . .	17
<a href="#">System</a> . . . . .	22
<a href="#">SystemImplementation</a> . . . . .	24



## Chapter 3

# File Index

### 3.1 File List

Here is a list of all files with brief descriptions:

src/lib/Flow.h . . . . .	29
src/lib/FlowImplementation.cpp . . . . .	31
src/lib/FlowImplementation.h . . . . .	32
src/lib/Model.h . . . . .	33
src/lib/ModelImplementation.cpp . . . . .	35
src/lib/ModelImplementation.h . . . . .	37
src/lib/System.h . . . . .	38
src/lib/SystemImplementation.cpp . . . . .	40
src/lib/SystemImplementation.h . . . . .	40



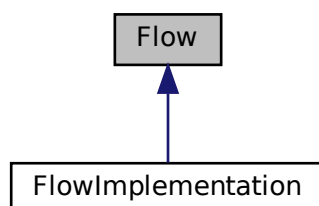
## Chapter 4

# Class Documentation

### 4.1 Flow Class Reference

```
#include <Flow.h>
```

Inheritance diagram for Flow:



#### Public Member Functions

- virtual `~Flow` ()=default
- virtual `std::string getName` () const =0
- virtual void `setName` (std::string)=0
- virtual double `getValue` () const =0
- virtual void `setValue` (double)=0
- virtual void `expression` ()=0
- virtual `System * getSystemBegin` () const =0
- virtual void `setSystemBegin` (System \*)=0
- virtual `System * getSystemEnd` () const =0
- virtual void `setSystemEnd` (System \*)=0

#### 4.1.1 Constructor & Destructor Documentation

#### 4.1.1.1 ~Flow()

```
virtual Flow::~~Flow ( ) [virtual], [default]
```

### 4.1.2 Member Function Documentation

#### 4.1.2.1 expression()

```
virtual void Flow::expression ( ) [pure virtual]
```

Implemented in [FlowImplementation](#).

#### 4.1.2.2 getName()

```
virtual std::string Flow::getName ( ) const [pure virtual]
```

Implemented in [FlowImplementation](#).

#### 4.1.2.3 getSystemBegin()

```
virtual System * Flow::getSystemBegin ( ) const [pure virtual]
```

Implemented in [FlowImplementation](#).

#### 4.1.2.4 getSystemEnd()

```
virtual System * Flow::getSystemEnd ( ) const [pure virtual]
```

Implemented in [FlowImplementation](#).

#### 4.1.2.5 getValue()

```
virtual double Flow::getValue ( ) const [pure virtual]
```

Implemented in [FlowImplementation](#).

#### 4.1.2.6 setName()

```
virtual void Flow::setName (
    std::string ) [pure virtual]
```

Implemented in [FlowImplementation](#).

#### 4.1.2.7 setSystemBegin()

```
virtual void Flow::setSystemBegin (
    System * ) [pure virtual]
```

Implemented in [FlowImplementation](#).

#### 4.1.2.8 setSystemEnd()

```
virtual void Flow::setSystemEnd (
    System * ) [pure virtual]
```

Implemented in [FlowImplementation](#).

#### 4.1.2.9 setValue()

```
virtual void Flow::setValue (
    double ) [pure virtual]
```

Implemented in [FlowImplementation](#).

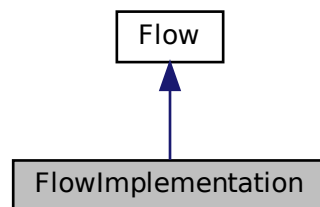
The documentation for this class was generated from the following file:

- [src/lib/Flow.h](#)

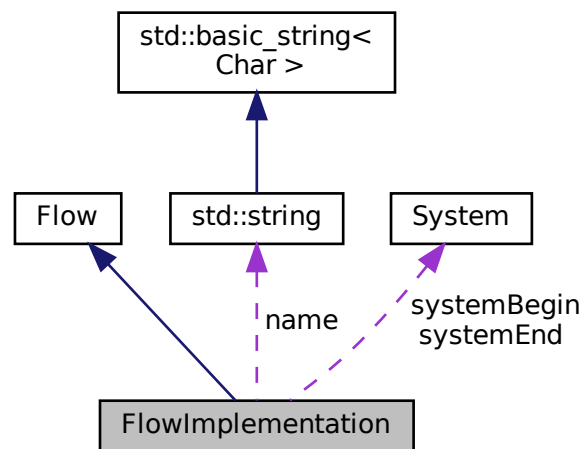
## 4.2 FlowImplementation Class Reference

```
#include <FlowImplementation.h>
```

Inheritance diagram for FlowImplementation:



Collaboration diagram for FlowImplementation:



### Public Member Functions

- [~FlowImplementation](#) () override
- [FlowImplementation](#) (std::string name, double value, System \*systemBegin, System \*systemEnd)
- [FlowImplementation & operator=](#) (const Flow &flow)
- void [expression](#) () override=0
- std::string [getName](#) () const override
- void [setName](#) (std::string n) override
- double [getValue](#) () const override



- void `setValue` (double v) override
- `System * getSystemBegin` () const override
- void `setSystemBegin` (`System *system`) override
- `System * getSystemEnd` () const override
- void `setSystemEnd` (`System *system`) override

## Protected Attributes

- std::string `name`
- double `value`
- `System * systemBegin`
- `System * systemEnd`

### 4.2.1 Detailed Description

`Flow` that converges energy from a model to another

### 4.2.2 Constructor & Destructor Documentation

#### 4.2.2.1 ~FlowImplementation()

```
FlowImplementation::~FlowImplementation ( ) [override], [default]
```

Default destructor

#### 4.2.2.2 FlowImplementation()

```
FlowImplementation::FlowImplementation (
    std::string name,
    double value,
    System * systemBegin,
    System * systemEnd )
```

Default constructor

#### Parameters

<i>name</i>	Initial flow name
<i>value</i>	Initial flow value
<i>systemBegin</i>	Initial system where the flow comes from
<i>systemEnd</i>	Initial system where the flow goes to

#### Returns

[Flow](#) with initial name, value, systemBegin and systemEnd

### 4.2.3 Member Function Documentation

#### 4.2.3.1 expression()

```
void FlowImplementation::expression ( ) [override], [pure virtual]
```

Sets the expression of the flow

Implements [Flow](#).

#### 4.2.3.2 getName()

```
std::string FlowImplementation::getName ( ) const [override], [virtual]
```

Get system name

Implements [Flow](#).

#### 4.2.3.3 getSystemBegin()

```
System * FlowImplementation::getSystemBegin ( ) const [override], [virtual]
```

Get systemBegin

Implements [Flow](#).

#### 4.2.3.4 getSystemEnd()

```
System * FlowImplementation::getSystemEnd ( ) const [override], [virtual]
```

Get systemEnd

Implements [Flow](#).

#### 4.2.3.5 getValue()

```
double FlowImplementation::getValue ( ) const [override], [virtual]
```

Get system value

Implements [Flow](#).

#### 4.2.3.6 operator=()

```
FlowImplementation & FlowImplementation::operator= (
    const Flow & flow )
```

Copy Assignment Operator

## Parameters

<i>flow</i>	Flow to copy from
-------------	-------------------

## Returns

Copied flow

#### 4.2.3.7 setName()

```
void FlowImplementation::setName (
    std::string n ) [override], [virtual]
```

Set system name

## Parameters

<i>n</i>	Name for the flow
----------	-------------------

Implements [Flow](#).

#### 4.2.3.8 setSystemBegin()

```
void FlowImplementation::setSystemBegin (
    System * system ) [override], [virtual]
```

Set systemBegin

## Parameters

<i>system</i>	SystemBegin for the flow
---------------	--------------------------

Implements [Flow](#).

#### 4.2.3.9 setSystemEnd()

```
void FlowImplementation::setSystemEnd (
    System * system ) [override], [virtual]
```

Set systemBegin

**Parameters**

<i>system</i>	SystemEnd for the flow
---------------	------------------------

Implements [Flow](#).

**4.2.3.10 setValue()**

```
void FlowImplementation::setValue (
    double v ) [override], [virtual]
```

Set system value

**Parameters**

<i>v</i>	Value for the flow
----------	--------------------

Implements [Flow](#).

**4.2.4 Member Data Documentation****4.2.4.1 name**

```
std::string FlowImplementation::name [protected]
```

**4.2.4.2 systemBegin**

```
System* FlowImplementation::systemBegin [protected]
```

**4.2.4.3 systemEnd**

```
System* FlowImplementation::systemEnd [protected]
```

#### 4.2.4.4 value

```
double FlowImplementation::value [protected]
```

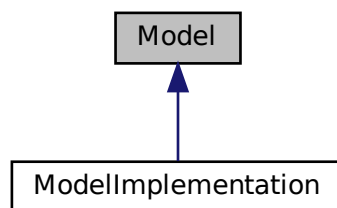
The documentation for this class was generated from the following files:

- [src/lib/FlowImplementation.h](#)
- [src/lib/FlowImplementation.cpp](#)

## 4.3 Model Class Reference

```
#include <Model.h>
```

Inheritance diagram for Model:



### Public Member Functions

- virtual [~Model](#) ()=default
- virtual void [simulate](#) (double, double, double)=0
- virtual std::string [getName](#) () const =0
- virtual void [setName](#) (std::string)=0
- virtual double [getTime](#) () const =0
- virtual void [setTime](#) (double)=0
- virtual void [add](#) ([System](#) \*)=0
- virtual void [add](#) ([Flow](#) \*)=0

### 4.3.1 Constructor & Destructor Documentation

#### 4.3.1.1 ~Model()

```
virtual Model::~~Model ( ) [virtual], [default]
```

## 4.3.2 Member Function Documentation

### 4.3.2.1 add() [1/2]

```
virtual void Model::add (  
    Flow * ) [pure virtual]
```

Implemented in [ModelImplementation](#).

### 4.3.2.2 add() [2/2]

```
virtual void Model::add (  
    System * ) [pure virtual]
```

Implemented in [ModelImplementation](#).

### 4.3.2.3 getName()

```
virtual std::string Model::getName ( ) const [pure virtual]
```

Implemented in [ModelImplementation](#).

### 4.3.2.4 getTime()

```
virtual double Model::getTime ( ) const [pure virtual]
```

Implemented in [ModelImplementation](#).

### 4.3.2.5 setName()

```
virtual void Model::setName (  
    std::string ) [pure virtual]
```

Implemented in [ModelImplementation](#).

#### 4.3.2.6 setTime()

```
virtual void Model::setTime (  
    double ) [pure virtual]
```

Implemented in [ModelImplementation](#).

#### 4.3.2.7 simulate()

```
virtual void Model::simulate (  
    double ,  
    double ,  
    double ) [pure virtual]
```

Implemented in [ModelImplementation](#).

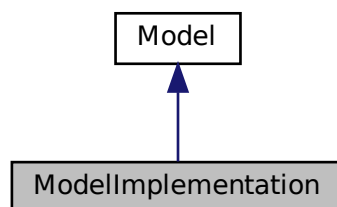
The documentation for this class was generated from the following file:

- [src/lib/Model.h](#)

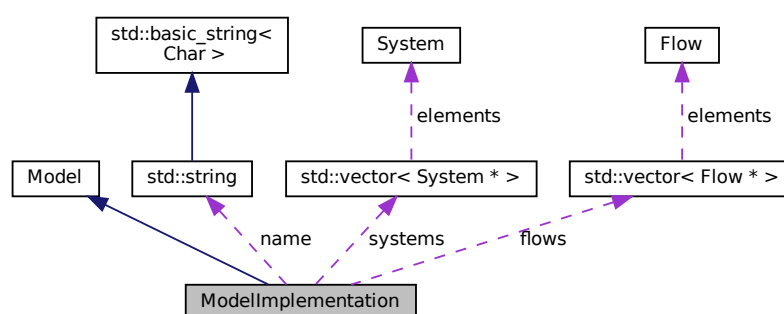
## 4.4 ModelImplementation Class Reference

```
#include <ModelImplementation.h>
```

Inheritance diagram for ModelImplementation:



Collaboration diagram for ModelImplementation:



## Public Member Functions

- [~ModellImplementation](#) () override
- [ModellImplementation](#) (std::string [name](#), double [time](#))
- [ModellImplementation](#) & [operator=](#) (const [ModellImplementation](#) &model)
- void [simulate](#) (double start, double end, double timestep) override
- std::string [getName](#) () const override
- void [setName](#) (std::string n) override
- double [getTime](#) () const override
- void [setTime](#) (double t) override
- void [add](#) ([System](#) \*system) override
- void [add](#) ([Flow](#) \*flow) override

## Protected Attributes

- std::string [name](#)
- double [time](#)
- std::vector< [System](#) \* > [systems](#)
- std::vector< [Flow](#) \* > [flows](#)

### 4.4.1 Detailed Description

[Model](#) that simulates the energy flow through models

### 4.4.2 Constructor & Destructor Documentation

#### 4.4.2.1 ~ModellImplementation()

```
ModellImplementation::~~ModellImplementation ( ) [override]
```

Default destructor

#### 4.4.2.2 ModellImplementation()

```
ModellImplementation::ModellImplementation (
    std::string name,
    double time )
```

Default constructor

Parameters

<i>name</i>	Initial model name
<i>time</i>	Initial model time



## Returns

[Model](#) with initial name and time

### 4.4.3 Member Function Documentation

#### 4.4.3.1 add() [1/2]

```
void ModelImplementation::add (  
    Flow * flow ) [override], [virtual]
```

Add a flow to the model

## Parameters

<i>flow</i>	<a href="#">Flow</a> to be added to the model
-------------	---

Implements [Model](#).

#### 4.4.3.2 add() [2/2]

```
void ModelImplementation::add (  
    System * system ) [override], [virtual]
```

Add a system to the model

## Parameters

<i>system</i>	<a href="#">System</a> to be added to the model
---------------	---

Implements [Model](#).

#### 4.4.3.3 getName()

```
std::string ModelImplementation::getName ( ) const [override], [virtual]
```

Get model name

Implements [Model](#).

#### 4.4.3.4 getTime()

```
double ModelImplementation::getTime ( ) const [override], [virtual]
```

Get model time

Implements [Model](#).

#### 4.4.3.5 operator=()

```
ModelImplementation & ModelImplementation::operator= (
    const ModelImplementation & model )
```

Copy Assignment Operator

Parameters

<i>model</i>	<a href="#">Model</a> to copy from
--------------	------------------------------------

Returns

Copied model

#### 4.4.3.6 setName()

```
void ModelImplementation::setName (
    std::string n ) [override], [virtual]
```

Set model name

Parameters

<i>n</i>	Name for the system
----------	---------------------

Implements [Model](#).

#### 4.4.3.7 setTime()

```
void ModelImplementation::setTime (
    double t ) [override], [virtual]
```

Set model time

## Parameters

<i>t</i>	Name for the system
----------	---------------------

Implements [Model](#).

**4.4.3.8 simulate()**

```
void ModelImplementation::simulate (
    double start,
    double end,
    double timestep ) [override], [virtual]
```

Simulates the model during a period of time between start and end time values with a specified timestep

## Parameters

<i>start</i>	Time where the simulation starts
<i>end</i>	Time where the simulation ends
<i>timestep</i>	Timestep value to simulate with

Implements [Model](#).

**4.4.4 Member Data Documentation****4.4.4.1 flows**

```
std::vector<Flow*> ModelImplementation::flows [protected]
```

**4.4.4.2 name**

```
std::string ModelImplementation::name [protected]
```

**4.4.4.3 systems**

```
std::vector<System*> ModelImplementation::systems [protected]
```

#### 4.4.4.4 time

```
double ModelImplementation::time [protected]
```

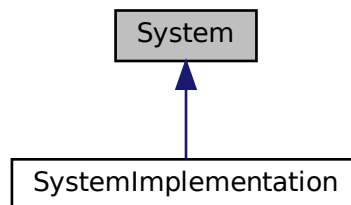
The documentation for this class was generated from the following files:

- [src/lib/ModelImplementation.h](#)
- [src/lib/ModelImplementation.cpp](#)

## 4.5 System Class Reference

```
#include <System.h>
```

Inheritance diagram for System:



### Public Member Functions

- virtual [~System](#) ()=default
- virtual std::string [getName](#) () const =0
- virtual void [setName](#) (std::string)=0
- virtual double [getValue](#) () const =0
- virtual void [setValue](#) (double)=0

### 4.5.1 Constructor & Destructor Documentation

#### 4.5.1.1 ~System()

```
virtual System::~~System ( ) [virtual], [default]
```

### 4.5.2 Member Function Documentation

#### 4.5.2.1 getName()

```
virtual std::string System::getName ( ) const [pure virtual]
```

Implemented in [SystemImplementation](#).

#### 4.5.2.2 getValue()

```
virtual double System::getValue ( ) const [pure virtual]
```

Implemented in [SystemImplementation](#).

#### 4.5.2.3 setName()

```
virtual void System::setName (
    std::string ) [pure virtual]
```

Implemented in [SystemImplementation](#).

#### 4.5.2.4 setValue()

```
virtual void System::setValue (
    double ) [pure virtual]
```

Implemented in [SystemImplementation](#).

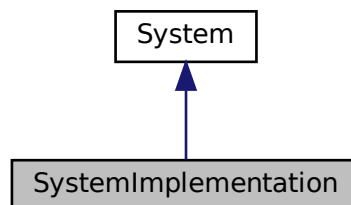
The documentation for this class was generated from the following file:

- [src/lib/System.h](#)

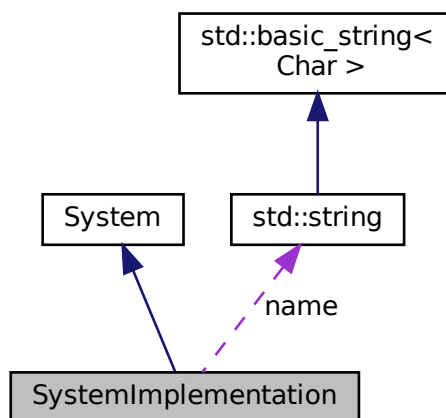
## 4.6 SystemImplementation Class Reference

```
#include <SystemImplementation.h>
```

Inheritance diagram for SystemImplementation:



Collaboration diagram for SystemImplementation:



### Public Member Functions

- `~SystemImplementation` () override
- `SystemImplementation` (std::string name, double value)
- `SystemImplementation & operator=` (const `SystemImplementation` &system)
- std::string `getName` () const override
- void `setName` (std::string n) override
- double `getValue` () const override
- void `setValue` (double v) override

## Protected Attributes

- `std::string` [name](#)
- `double` [value](#)

### 4.6.1 Detailed Description

[System](#) that stores energy

### 4.6.2 Constructor & Destructor Documentation

#### 4.6.2.1 `~SystemImplementation()`

```
SystemImplementation::~SystemImplementation ( ) [override], [default]
```

Default destructor

#### 4.6.2.2 `SystemImplementation()`

```
SystemImplementation::SystemImplementation (
    std::string name,
    double value )
```

Default constructor

Parameters

<i>name</i>	Initial system name
<i>value</i>	Initial system value

Returns

[System](#) with initial name and value

### 4.6.3 Member Function Documentation

#### 4.6.3.1 `getName()`

```
std::string SystemImplementation::getName ( ) const [override], [virtual]
```

Get system name

Implements [System](#).

#### 4.6.3.2 getValue()

```
double SystemImplementation::getValue ( ) const [override], [virtual]
```

Get system value

Implements [System](#).

#### 4.6.3.3 operator=()

```
SystemImplementation & SystemImplementation::operator= (
    const SystemImplementation & system )
```

Copy Assignment Operator

Parameters

<i>system</i>	<a href="#">System</a> to copy from
---------------	-------------------------------------

Returns

Copied system

#### 4.6.3.4 setName()

```
void SystemImplementation::setName (
    std::string n ) [override], [virtual]
```

Set system name

Parameters

<i>n</i>	Name for the system
----------	---------------------

Implements [System](#).

#### 4.6.3.5 setValue()

```
void SystemImplementation::setValue (
    double v ) [override], [virtual]
```

Set system value



## Parameters

v	Value for the system
---	----------------------

Implements [System](#).

## 4.6.4 Member Data Documentation

### 4.6.4.1 name

```
std::string SystemImplementation::name [protected]
```

### 4.6.4.2 value

```
double SystemImplementation::value [protected]
```

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

- [src/lib/SystemImplementation.h](#)
- [src/lib/SystemImplementation.cpp](#)



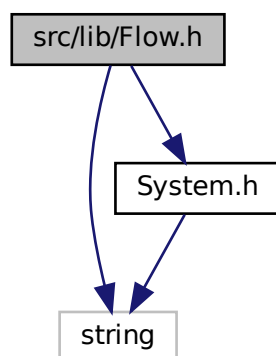
## Chapter 5

# File Documentation

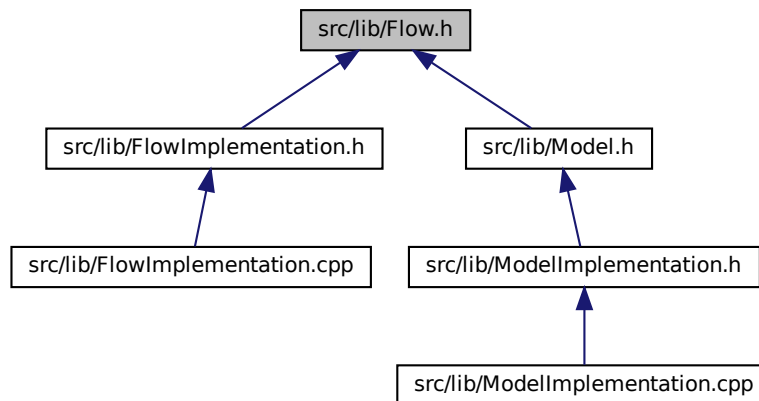
### 5.1 src/lib/Flow.h File Reference

```
#include <string>  
#include "System.h"
```

Include dependency graph for Flow.h:



This graph shows which files directly or indirectly include this file:



## Classes

- class [Flow](#)

## 5.2 Flow.h

[Go to the documentation of this file.](#)

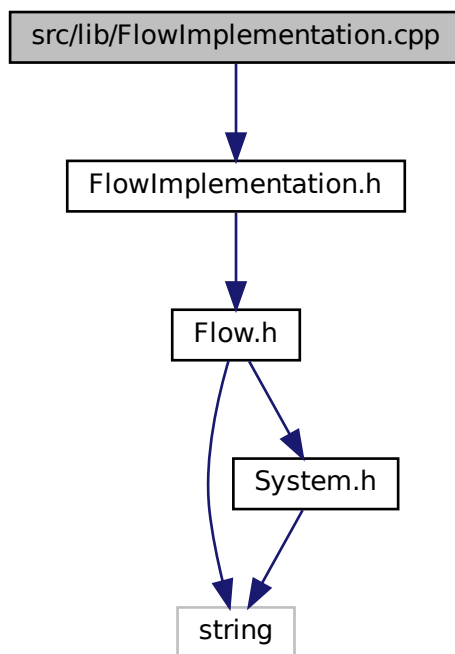
```

1 //
2 // Created by joaozenobio on 27/04/2022.
3 //
4
5 #ifndef ENGL_FLOW_H
6 #define ENGL_FLOW_H
7
8 #include <string>
9
10 #include "System.h"
11
12 class Flow {
13 public:
14     virtual ~Flow() = default;
15     virtual std::string getName() const = 0;
16     virtual void setName(std::string) = 0;
17     virtual double getValue() const = 0;
18     virtual void setValue(double) = 0;
19     virtual void expression() = 0;
20     virtual System* getSystemBegin() const = 0;
21     virtual void setSystemBegin(System*) = 0;
22     virtual System* getSystemEnd() const = 0;
23     virtual void setSystemEnd(System*) = 0;
24 };
25
26
27 #endif //ENGL_FLOW_H
  
```

## 5.3 src/lib/FlowImplementation.cpp File Reference

```
#include "FlowImplementation.h"
```

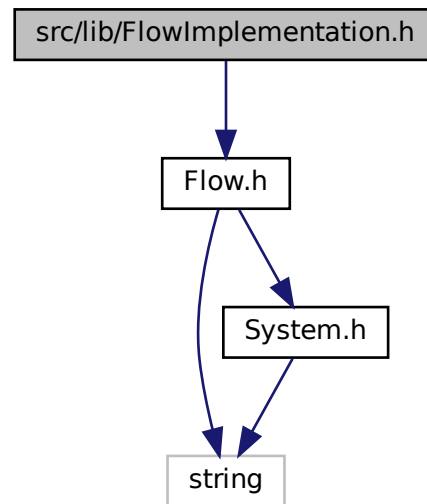
Include dependency graph for FlowImplementation.cpp:



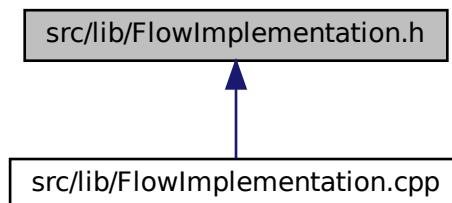
## 5.4 src/lib/FlowImplementation.h File Reference

```
#include "Flow.h"
```

Include dependency graph for FlowImplementation.h:



This graph shows which files directly or indirectly include this file:



### Classes

- class [FlowImplementation](#)

## 5.5 FlowImplementation.h

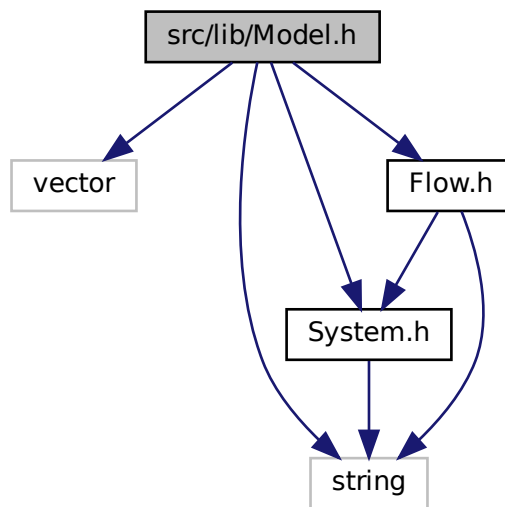
[Go to the documentation of this file.](#)

```
1 //
2 // Created by joaozenobio on 28/04/2022.
3 //
4
5 #ifndef ENGL_FLOWIMPLEMENTATION_H
6 #define ENGL_FLOWIMPLEMENTATION_H
7
8
9 #include "Flow.h"
10
11 class FlowImplementation : public Flow {
12 private:
13     FlowImplementation(const FlowImplementation& flow);
14
15 protected:
16     std::string name;
17     double value;
18     System* systemBegin;
19     System* systemEnd;
20
21 public:
22     ~FlowImplementation() override;
23
24     FlowImplementation(std::string name, double value, System* systemBegin, System* systemEnd);
25
26     FlowImplementation& operator=(const Flow& flow);
27
28     void expression() override = 0;
29
30     std::string getName() const override;
31
32     void setName(std::string n) override;
33
34     double getValue() const override;
35
36     void setValue(double v) override;
37
38     System* getSystemBegin() const override;
39
40     void setSystemBegin(System* system) override;
41
42     System* getSystemEnd() const override;
43
44     void setSystemEnd(System* system) override;
45 };
46
47 #endif //ENGL_FLOWIMPLEMENTATION_H
```

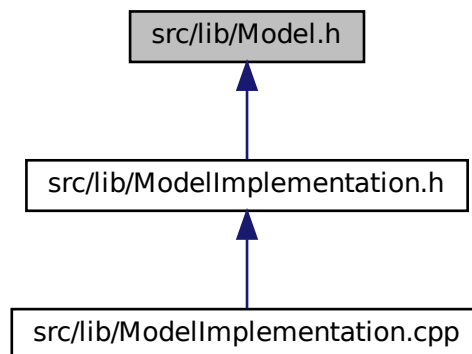
## 5.6 src/lib/Model.h File Reference

```
#include <vector>
#include <string>
#include "System.h"
#include "Flow.h"
```

Include dependency graph for Model.h:



This graph shows which files directly or indirectly include this file:



## Classes

- class [Model](#)

## 5.7 Model.h

[Go to the documentation of this file.](#)

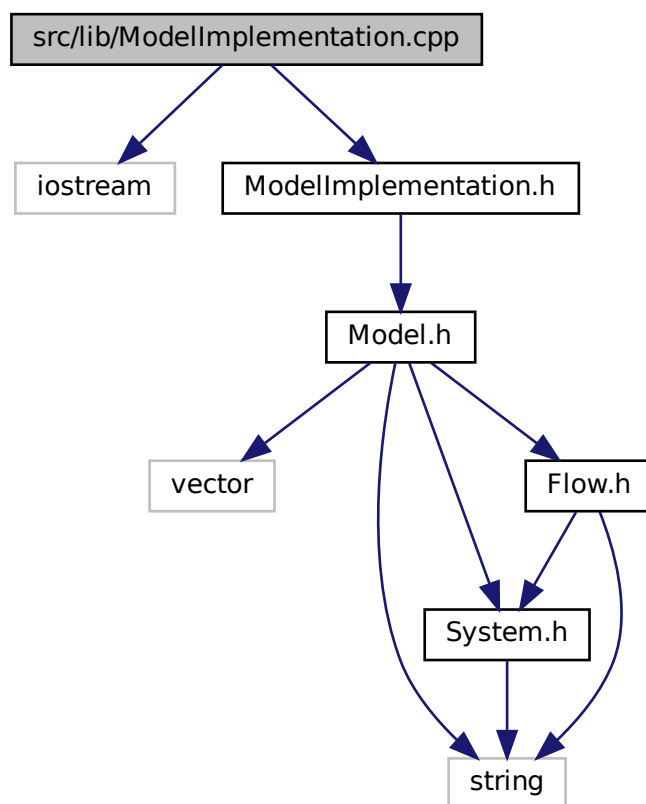


```
1 //
2 // Created by joaozenobio on 27/04/2022.
3 //
4
5 #ifndef ENGL_MODEL_H
6 #define ENGL_MODEL_H
7
8
9 #include <vector>
10 #include <string>
11
12 #include "System.h"
13 #include "Flow.h"
14
15 class Model {
16 public:
17     virtual ~Model() = default;
18     virtual void simulate(double, double, double) = 0;
19     virtual std::string getName() const = 0;
20     virtual void setName(std::string) = 0;
21     virtual double getTime() const = 0;
22     virtual void setTime(double) = 0;
23     virtual void add(System*) = 0;
24     virtual void add(Flow*) = 0;
25 };
26
27
28 #endif //ENGL_MODEL_H
```

## 5.8 src/lib/ModelImplementation.cpp File Reference

```
#include <iostream>
#include "ModelImplementation.h"
```

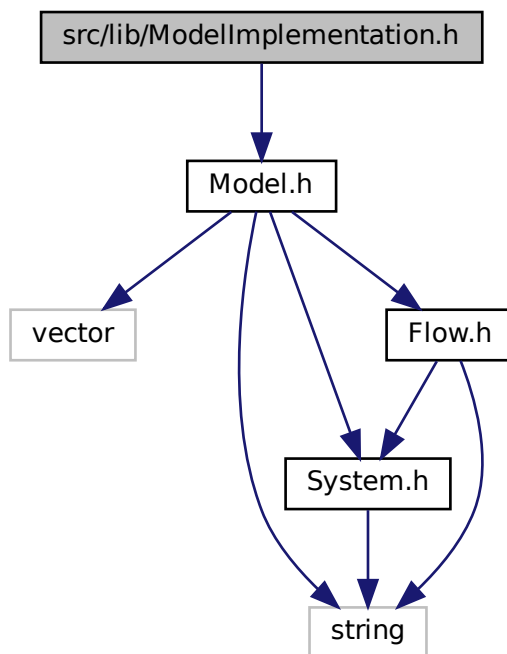
Include dependency graph for ModelImplementation.cpp:



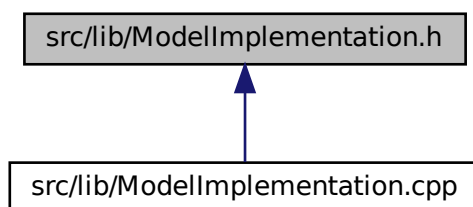
## 5.9 src/lib/ModellImplementation.h File Reference

```
#include "Model.h"
```

Include dependency graph for ModellImplementation.h:



This graph shows which files directly or indirectly include this file:



### Classes

- class [ModellImplementation](#)

## 5.10 ModelImplementation.h

[Go to the documentation of this file.](#)

```

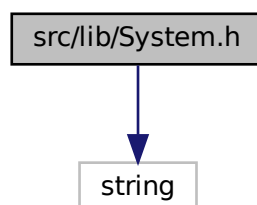
1 //
2 // Created by joaozenobio on 28/04/2022.
3 //
4
5 #ifndef ENGL_MODELIMPLEMENTATION_H
6 #define ENGL_MODELIMPLEMENTATION_H
7
8
9 #include "Model.h"
10
11 class ModelImplementation: public Model {
12 private:
13     ModelImplementation(const ModelImplementation& model);
14
15 protected:
16     std::string name;
17     double time;
18     std::vector<System*> systems;
19     std::vector<Flow*> flows;
20
21 public:
22     ~ModelImplementation() override;
23
24     ModelImplementation(std::string name, double time);
25
26     ModelImplementation& operator=(const ModelImplementation& model);
27
28     void simulate(double start, double end, double timestep) override;
29
30     std::string getName() const override;
31
32     void setName(std::string n) override;
33
34     double getTime() const override;
35
36     void setTime(double t) override;
37
38     void add(System* system) override;
39
40     void add(Flow* flow) override;
41 };
42
43 #endif //ENGL_MODELIMPLEMENTATION_H

```

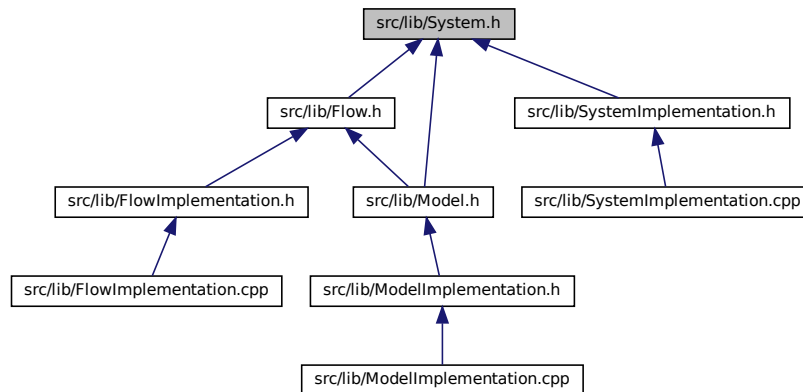
## 5.11 src/lib/System.h File Reference

```
#include <string>
```

Include dependency graph for System.h:



This graph shows which files directly or indirectly include this file:



## Classes

- class [System](#)

## 5.12 System.h

[Go to the documentation of this file.](#)

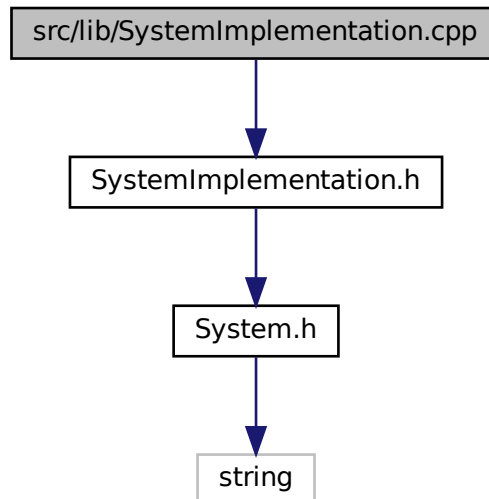
```

1 //
2 // Created by joaozenobio on 27/04/2022.
3 //
4
5 #ifndef ENGL_SYSTEM_H
6 #define ENGL_SYSTEM_H
7
8 #include <string>
9
10 class System {
11 public:
12     virtual ~System() = default;
13     virtual std::string getName() const = 0;
14     virtual void setName(std::string) = 0;
15     virtual double getValue() const = 0;
16     virtual void setValue(double) = 0;
17 };
18
19
20 #endif //ENGL_SYSTEM_H
  
```

### 5.13 src/lib/SystemImplementation.cpp File Reference

```
#include "SystemImplementation.h"
```

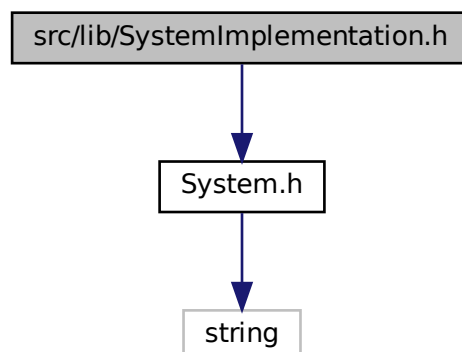
Include dependency graph for SystemImplementation.cpp:



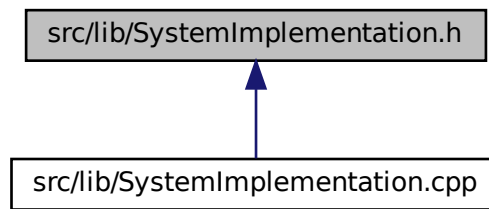
### 5.14 src/lib/SystemImplementation.h File Reference

```
#include "System.h"
```

Include dependency graph for SystemImplementation.h:



This graph shows which files directly or indirectly include this file:



## Classes

- class [SystemImplementation](#)

## 5.15 SystemImplementation.h

[Go to the documentation of this file.](#)

```
1 //
2 // Created by joaozenobio on 28/04/2022.
3 //
4
5 #ifndef ENGL_SYSTEMIMPLEMENTATION_H
6 #define ENGL_SYSTEMIMPLEMENTATION_H
7
8 #include "System.h"
9
13 class SystemImplementation : public System {
14
15 private:
21     SystemImplementation(const SystemImplementation& system);
22
23 protected:
24     std::string name;
25     double value;
26
27 public:
31     ~SystemImplementation() override;
32
39     SystemImplementation(std::string name, double value);
40
46     SystemImplementation& operator=(const SystemImplementation& system);
47
51     std::string getName() const override;
52
57     void setName(std::string n) override;
58
62     double getValue() const override;
63
68     void setValue(double v) override;
69 };
70
71
72 #endif //ENGL_SYSTEMIMPLEMENTATION_H
```





# Index

- ~Flow
  - Flow, [7](#)
- ~FlowImplementation
  - FlowImplementation, [11](#)
- ~Model
  - Model, [15](#)
- ~ModellImplementation
  - ModellImplementation, [18](#)
- ~System
  - System, [22](#)
- ~SystemImplementation
  - SystemImplementation, [25](#)
- add
  - Model, [16](#)
  - ModellImplementation, [19](#)
- expression
  - Flow, [8](#)
  - FlowImplementation, [12](#)
- Flow, [7](#)
  - ~Flow, [7](#)
  - expression, [8](#)
  - getName, [8](#)
  - getSystemBegin, [8](#)
  - getSystemEnd, [8](#)
  - getValue, [8](#)
  - setName, [8](#)
  - setSystemBegin, [9](#)
  - setSystemEnd, [9](#)
  - setValue, [9](#)
- FlowImplementation, [10](#)
  - ~FlowImplementation, [11](#)
  - expression, [12](#)
  - FlowImplementation, [11](#)
  - getName, [12](#)
  - getSystemBegin, [12](#)
  - getSystemEnd, [12](#)
  - getValue, [12](#)
  - name, [14](#)
  - operator=, [12](#)
  - setName, [13](#)
  - setSystemBegin, [13](#)
  - setSystemEnd, [13](#)
  - setValue, [14](#)
  - systemBegin, [14](#)
  - systemEnd, [14](#)
  - value, [14](#)
- flows
  - ModellImplementation, [21](#)
- getName
  - Flow, [8](#)
  - FlowImplementation, [12](#)
  - Model, [16](#)
  - ModellImplementation, [19](#)
  - System, [22](#)
  - SystemImplementation, [25](#)
- getSystemBegin
  - Flow, [8](#)
  - FlowImplementation, [12](#)
- getSystemEnd
  - Flow, [8](#)
  - FlowImplementation, [12](#)
- getTime
  - Model, [16](#)
  - ModellImplementation, [19](#)
- getValue
  - Flow, [8](#)
  - FlowImplementation, [12](#)
  - System, [23](#)
  - SystemImplementation, [25](#)
- Model, [15](#)
  - ~Model, [15](#)
  - add, [16](#)
  - getName, [16](#)
  - getTime, [16](#)
  - setName, [16](#)
  - setTime, [16](#)
  - simulate, [17](#)
- ModellImplementation, [17](#)
  - ~ModellImplementation, [18](#)
  - add, [19](#)
  - flows, [21](#)
  - getName, [19](#)
  - getTime, [19](#)
  - ModellImplementation, [18](#)
  - name, [21](#)
  - operator=, [20](#)
  - setName, [20](#)
  - setTime, [20](#)
  - simulate, [21](#)
  - systems, [21](#)
  - time, [21](#)
- name
  - FlowImplementation, [14](#)
  - ModellImplementation, [21](#)

- SystemImplementation, 27
- operator=
  - FlowImplementation, 12
  - ModellImplementation, 20
  - SystemImplementation, 26
- setName
  - Flow, 8
  - FlowImplementation, 13
  - Model, 16
  - ModellImplementation, 20
  - System, 23
  - SystemImplementation, 26
- setSystemBegin
  - Flow, 9
  - FlowImplementation, 13
- setSystemEnd
  - Flow, 9
  - FlowImplementation, 13
- setTime
  - Model, 16
  - ModellImplementation, 20
- setValue
  - Flow, 9
  - FlowImplementation, 14
  - System, 23
  - SystemImplementation, 26
- simulate
  - Model, 17
  - ModellImplementation, 21
- src/lib/Flow.h, 29, 30
- src/lib/FlowImplementation.cpp, 31
- src/lib/FlowImplementation.h, 32
- src/lib/Model.h, 33, 34
- src/lib/ModellImplementation.cpp, 35
- src/lib/ModellImplementation.h, 37, 38
- src/lib/System.h, 38, 39
- src/lib/SystemImplementation.cpp, 40
- src/lib/SystemImplementation.h, 40, 41
- System, 22
  - ~System, 22
  - getName, 22
  - getValue, 23
  - setName, 23
  - setValue, 23
- systemBegin
  - FlowImplementation, 14
- systemEnd
  - FlowImplementation, 14
- SystemImplementation, 24
  - ~SystemImplementation, 25
  - getName, 25
  - getValue, 25
  - name, 27
  - operator=, 26
  - setName, 26
  - setValue, 26
  - SystemImplementation, 25
  - value, 27
- systems
  - ModellImplementation, 21
- time
  - ModellImplementation, 21
- value
  - FlowImplementation, 14
  - SystemImplementation, 27