MyVensin

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Chapter 1

Hierarchical Index

1.1 Class Hierarchy

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

Chapter 2

Class Index

2.1 Class List

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

Chapter 3

File Index

3.1 File List

Here is a list of all files with brief descriptions:

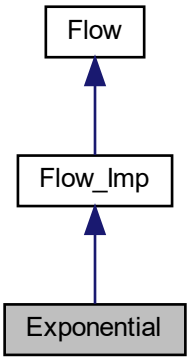
Chapter 4

Class Documentation

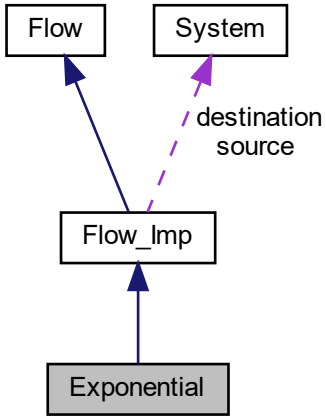
4.1 Exponential Class Reference

`#include <flow_Imp.h>`

Inheritance diagram for Exponential:



Collaboration diagram for Exponential:



Public Member Functions

- Exponential ()

  Builder to create a new exponential flow.
- Exponential (System *source, System *destination)
- double run ()

  Function to run the stream.

Additional Inherited Members

4.1.1 Detailed Description

Definition at line 73 of file flow_Imp.h.

4.1.2 Constructor & Destructor Documentation

4.1.2.1 Exponential() [1/2]

```
Exponential::Exponential ( )  [inline]
```

Builder to create a new exponential flow.

Definition at line 79 of file flow_Imp.h.

4.1.2.2 Exponential() [2/2]

```
Exponential::Exponential (
            System * source,
            System * destination )  [inline]
```

Definition at line 80 of file flow_Imp.h.

4.1.3 Member Function Documentation

4.1.3.1 run()

```
double Exponential::run ( )  [inline], [virtual]
```

Function to run the stream.

Returns

Returns double resulting from calculation performed.

Implements Flow_Imp.

Definition at line 87 of file flow_Imp.h.

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

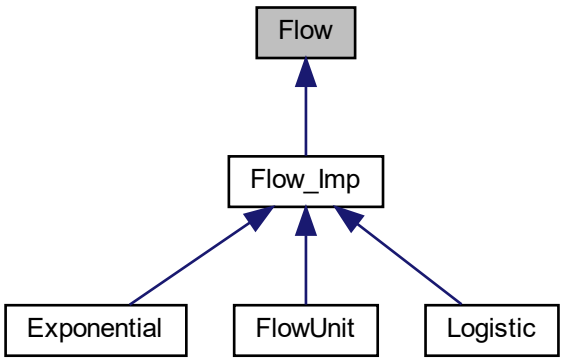
- src/lib/flow_Imp.h

4.2 Flow Class Reference

File responsible for project flows.

```
#include <flow.h>
```

Inheritance diagram for Flow:



Public Member Functions

- virtual ~Flow ()

  Destructor to destroy the flow.
- virtual void setSources (System *)=0

  Add an input system to the stream.
- virtual void setDestination (System *)=0

  Add an exit system to the stream.
- virtual System * getSource ()=0

  Function to return an input system.
- virtual System * getDestination ()=0

  Function to return an output system.
- virtual double run ()=0

  Virtual function to run the stream.
- virtual Flow * operator= (Flow *)=0

  Function to overload operator =.

4.2.1 Detailed Description

File responsible for project flows.

Author

Gabriel Niquini 19.1.4113

Definition at line 12 of file flow.h.

4.2.2 Constructor & Destructor Documentation

4.2.2.1 ~Flow()

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

Destructor to destroy the flow.

Definition at line 18 of file flow.h.

4.2.3 Member Function Documentation

4.2.3.1 getDestination()

```
virtual System * Flow::getDestination ( )  [pure virtual]
```

Function to return an output system.

Returns

Returns a System object.

Implemented in Flow_Imp.

4.2.3.2 getSource()

```
virtual System * Flow::getSource ( )  [pure virtual]
```

Function to return an input system.

Returns

Returns a System object.

Implemented in Flow_Imp.

4.2.3.3 operator=()

```
virtual Flow * Flow::operator= (
            Flow *  )  [pure virtual]
```

Function to overload operator =.

Parameters

Flow	Flow pointer.

Returns

Returns flow.

Implemented in Flow_Imp.

4.2.3.4 run()

```
virtual double Flow::run ( )  [pure virtual]
```

Virtual function to run the stream.

Returns

Returns value of 0.

Implemented in Exponential, Logistic, and Flow_Imp.

4.2.3.5 setDestination()

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

Add an exit system to the stream.

Parameters

system	System pointer.

Implemented in Flow_Imp.

4.2.3.6 setSources()

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

Add an input system to the stream.

Parameters

system	System pointer.

Implemented in Flow_Imp.

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

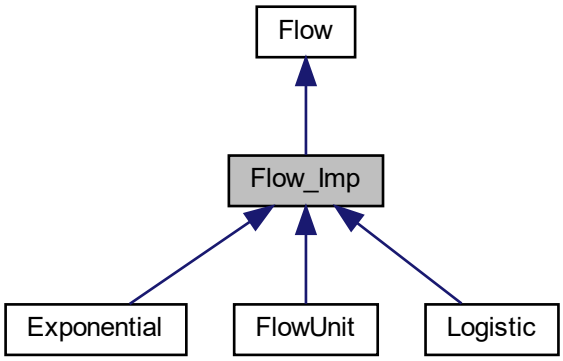
- src/lib/flow.h

4.3 Flow_Imp Class Reference

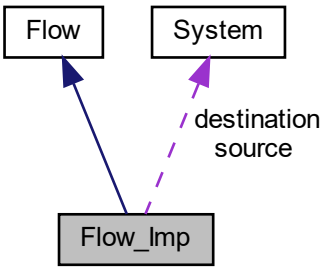
File responsible for project flows.

`#include <flow_Imp.h>`

Inheritance diagram for Flow_Imp:



Collaboration diagram for Flow_Imp:



Public Member Functions

- Flow_Imp ()

  Builder to create a new flow.
- Flow_Imp (System ∗, System ∗)
- virtual ∼Flow_Imp ()

  Destructor to destroy the flow.
- void setSources (System ∗)

  Add an input system to the stream.
- void setDestination (System ∗)

  Add an exit system to the stream.
- System ∗ getSource ()

Function to return an input system.

- System * getDestination ()

  Function to return an output system.

- virtual double run ()=0

  Virtual function to run the stream.

- Flow_Imp * operator= (Flow *)

  Function to overload operator =.

Protected Attributes

- System * source
- System * destination

4.3.1 Detailed Description

File responsible for project flows.

Author

Gabriel Niquini 19.1.4113

Definition at line 12 of file flow_Imp.h.

4.3.2 Constructor & Destructor Documentation

4.3.2.1 Flow_Imp() [1/2]

```
Flow_Imp::Flow_Imp ( )
```

Builder to create a new flow.

<Pointer of output of a system

Definition at line 3 of file flow_Imp.cpp.

4.3.2.2 Flow_Imp() [2/2]

```
Flow_Imp::Flow_Imp (
            System * source,
            System * destination )
```

Definition at line 5 of file flow_Imp.cpp.

4.3.2.3 ~Flow_Imp()

```
Flow_Imp::~Flow_Imp ( )  [virtual]
```

Destructor to destroy the flow.

Definition at line 10 of file flow_Imp.cpp.

4.3.3 Member Function Documentation

4.3.3.1 getDestination()

```
System * Flow_Imp::getDestination ( )  [virtual]
```

Function to return an output system.

Returns

Returns a System object.

Implements Flow.

Definition at line 24 of file flow_Imp.cpp.

4.3.3.2 getSource()

```
System * Flow_Imp::getSource ( )  [virtual]
```

Function to return an input system.

Returns

Returns a System object.

Implements Flow.

Definition at line 20 of file flow_Imp.cpp.

4.3.3.3 operator=()

```
Flow_Imp * Flow_Imp::operator= (
            Flow * flow )  [virtual]
```

Function to overload operator =.

Parameters

Flow_Imp	Flow pointer.

Returns

Returns flow.

Implements Flow.

Definition at line 28 of file flow_Imp.cpp.

4.3.3.4 run()

```
virtual double Flow_Imp::run ( )  [pure virtual]
```

Virtual function to run the stream.

Returns

Returns value of 0.

Implements Flow.

Implemented in Exponential, and Logistic.

4.3.3.5 setDestination()

```
void Flow_Imp::setDestination (
            System * destination )  [virtual]
```

Add an exit system to the stream.

Parameters

system	System pointer.

Implements Flow.

Definition at line 16 of file flow_Imp.cpp.

4.3.3.6 setSources()

```
void Flow_Imp::setSources (
            System * source )  [virtual]
```

Add an input system to the stream.

Parameters

system	System pointer.

Implements Flow.

Definition at line 12 of file flow_Imp.cpp.

4.3.4 Member Data Documentation

4.3.4.1 destination

```
System* Flow_Imp::destination  [protected]
```

<Pointer of entry of a system

Definition at line 15 of file flow_Imp.h.

4.3.4.2 source

```
System* Flow_Imp::source  [protected]
```

Definition at line 14 of file flow_Imp.h.

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

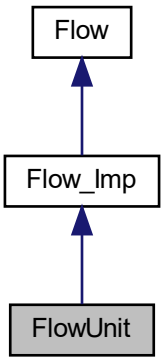
- src/lib/flow_Imp.h
- src/lib/flow_Imp.cpp

4.4 FlowUnit Class Reference

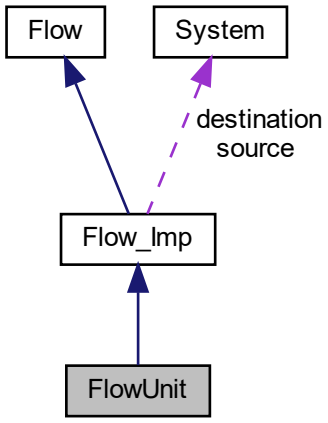
File responsible for project flows.

`#include <flow_unit.h>`

Inheritance diagram for FlowUnit:



Collaboration diagram for FlowUnit:



Additional Inherited Members

4.4.1 Detailed Description

File responsible for project flows.

Author

Gabriel Niquini 19.1.4113

Definition at line 12 of file flow_unit.h.

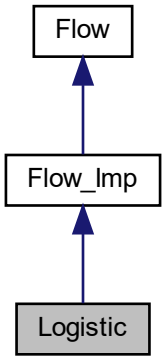
The documentation for this class was generated from the following file:

- src/lib/flow_unit.h

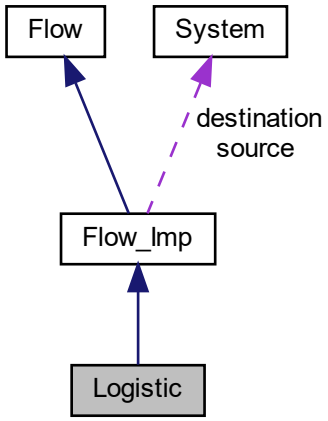
4.5 Logistic Class Reference

`#include <flow_Imp.h>`

Inheritance diagram for Logistic:



Collaboration diagram for Logistic:



Public Member Functions

- Logistic ()

  Builder to create a new logistical flow.
- Logistic (System *source, System *destination)
- double run ()

  Function to run the stream.

Additional Inherited Members

4.5.1 Detailed Description

Definition at line 92 of file flow_Imp.h.

4.5.2 Constructor & Destructor Documentation

4.5.2.1 Logistic() [1/2]

```
Logistic::Logistic ( )  [inline]
```

Builder to create a new logistical flow.

Definition at line 98 of file flow_Imp.h.

4.5.2.2 Logistic() [2/2]

```
Logistic::Logistic (
            System * source,
            System * destination )  [inline]
```

Definition at line 99 of file flow_Imp.h.

4.5.3 Member Function Documentation

4.5.3.1 run()

```
double Logistic::run ( )  [inline], [virtual]
```

Function to run the stream.

Returns

Returns double resulting from calculation performed.

Implements Flow_Imp.

Definition at line 106 of file flow_Imp.h.

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

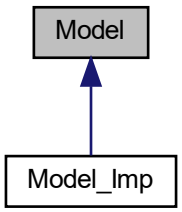
- src/lib/flow_Imp.h

4.6 Model Class Reference

File responsible for project templates.

```
#include <model.h>
```

Inheritance diagram for Model:



Public Member Functions

- virtual ~Model ()
  Destructor to destroy the model.
- virtual double run (int, int)=0
  Function to run the model.
- virtual System * createSystem (string, double)=0
- virtual Model * operator= (Model *)=0
- virtual System * getSystem (string name)=0
  Function to overload operator =.
- virtual vector< Flow * > getFlows ()=0
- template<typename T_FLOW >
  Flow * createFlow (System *source=nullptr, System *destination=nullptr)

Static Public Member Functions

- static Model * createModel (string)

  Function to create the model.

4.6.1 Detailed Description

File responsible for project templates.

Author

Gabriel Niquini 19.1.4113

Definition at line 12 of file model.h.

4.6.2 Constructor & Destructor Documentation

4.6.2.1 ~Model()

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

Destructor to destroy the model.

Definition at line 18 of file model.h.

4.6.3 Member Function Documentation

4.6.3.1 createFlow()

```
template<typename T_FLOW >
Flow * Model::createFlow (
            System * source = nullptr,
            System * destination = nullptr )  [inline]
```

Definition at line 48 of file model.h.

4.6.3.2 createModel()

```
Model * Model::createModel (
            string id )  [static]
```

Function to create the model.

Parameters

string	Initial value.

Returns

Returns final model.

Definition at line 23 of file model_Imp.cpp.

4.6.3.3 createSystem()

```
virtual System * Model::createSystem (
            string ,
            double  )  [pure virtual]
```

Implemented in Model_Imp.

4.6.3.4 getFlows()

```
virtual vector< Flow * > Model::getFlows ( )  [pure virtual]
```

Implemented in Model_Imp.

4.6.3.5 getSystem()

```
virtual System * Model::getSystem (
            string name )  [pure virtual]
```

Function to overload operator =.

Parameters

model	Model pointer.

Returns

Returns model.

Implemented in Model_Imp.

4.6.3.6 operator=()

```
virtual Model * Model::operator= (
            Model *  )  [pure virtual]
```

Implemented in Model_Imp.

4.6.3.7 run()

```
virtual double Model::run (
            int ,
            int  )  [pure virtual]
```

Function to run the model.

Parameters

start	Initial value.
finish	Final value.

Returns

Returns final value.

Implemented in Model_Imp.

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

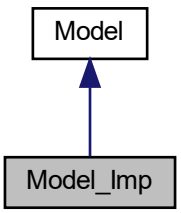
- src/lib/model.h
- src/lib/model_Imp.cpp

4.7 Model_Imp Class Reference

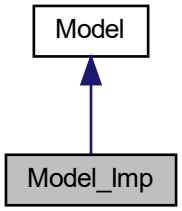
File responsible for project templates.

`#include <model_Imp.h>`

Inheritance diagram for Model_Imp:



Collaboration diagram for Model_Imp:



Public Member Functions

- Model_Imp ()
  Builder to create a new model.
- Model_Imp (string)
- virtual ~Model_Imp ()
  Destructor to destroy the model.
- double run (int, int)
  Function to run the model.
- System * createSystem (string, double)
- System * getSystem (string name)
  Function to overload operator =.
- vector< Flow * > getFlows ()
- Model_Imp * operator= (Model *)

Static Public Member Functions

- static Model * createModel (string)

Protected Attributes

- vector< Flow * > flows
- vector< System * > systems

Static Protected Attributes

- static vector< Model * > models

4.7.1 Detailed Description

File responsible for project templates.

Author

Gabriel Niquini 19.1.4113

Definition at line 15 of file model_Imp.h.

4.7.2 Constructor & Destructor Documentation

4.7.2.1 Model_Imp() [1/2]

```
Model_Imp::Model_Imp ( )
```

Builder to create a new model.

Definition at line 7 of file model_Imp.cpp.

4.7.2.2 Model_Imp() [2/2]

```
Model_Imp::Model_Imp (
            string id )
```

Definition at line 9 of file model_Imp.cpp.

4.7.2.3 ~Model_Imp()

```
Model_Imp::~Model_Imp ( )  [virtual]
```

Destructor to destroy the model.

Definition at line 13 of file model_Imp.cpp.

4.7.3 Member Function Documentation

4.7.3.1 createModel()

```
Model * Model_Imp::createModel (
            string id )  [static]
```

Definition at line 27 of file model_Imp.cpp.

4.7.3.2 createSystem()

```
System * Model_Imp::createSystem (
            string name,
            double value )  [virtual]
```

Implements Model.

Definition at line 56 of file model_Imp.cpp.

4.7.3.3 getFlows()

```
vector< Flow * > Model_Imp::getFlows ( )  [virtual]
```

Implements Model.

Definition at line 78 of file model_Imp.cpp.

4.7.3.4 getSystem()

```
System * Model_Imp::getSystem (
            string name )  [virtual]
```

Function to overload operator =.

Parameters

model	Model pointer.

Returns

Returns model.

Implements Model.

Definition at line 70 of file model_Imp.cpp.

4.7.3.5 operator=()

```
Model_Imp * Model_Imp::operator= (
            Model * model )  [virtual]
```

Implements Model.

Definition at line 82 of file model_Imp.cpp.

4.7.3.6 run()

```
double Model_Imp::run (
            int start,
            int finish )  [virtual]
```

Function to run the model.

Parameters

start	Initial value.
finish	Final value.

Returns

Returns final value.

Implements Model.

Definition at line 33 of file model_Imp.cpp.

4.7.4 Member Data Documentation

4.7.4.1 flows

```
vector<Flow*> Model_Imp::flows  [protected]
```

Definition at line 17 of file model_Imp.h.

4.7.4.2 models

```
vector< Model * > Model_Imp::models  [static], [protected]
```

< Systems pointer vector

Definition at line 19 of file model_Imp.h.

4.7.4.3 systems

```
vector<System*> Model_Imp::systems  [protected]
```

< Flow pointer vector

Definition at line 18 of file model_Imp.h.

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

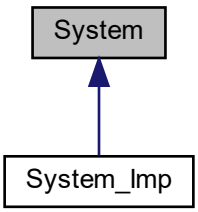
- src/lib/model_Imp.h
- src/lib/model_Imp.cpp

4.8 System Class Reference

File responsible for project systems.

`#include <system.h>`

Inheritance diagram for System:



Public Member Functions

- virtual ~System ()
  Destructor to destroy the system.
- virtual void setName (string)=0
  Add a name for the system.
- virtual void setValue (double)=0
  Add a value to the system.
- virtual double getValue ()=0
  Function to return system value.
- virtual string getName ()=0
  Function to return system name.
- virtual System * operator= (System *)=0
  Function to overload operator =.

4.8.1 Detailed Description

File responsible for project systems.

Author

Gabriel Niquini 19.1.4113

Definition at line 15 of file system.h.

4.8.2 Constructor & Destructor Documentation

4.8.2.1 ~System()

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

Destructor to destroy the system.

Definition at line 21 of file system.h.

4.8.3 Member Function Documentation

4.8.3.1 getName()

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

Function to return system name.

Returns

Returns a string.

Implemented in System_Imp.

4.8.3.2 getValue()

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

Function to return system value.

Returns

Returns a double.

Implemented in System_Imp.

4.8.3.3 operator=()

```
virtual System * System::operator= (
            System *  )  [pure virtual]
```

Function to overload operator =.

Parameters

flow	System pointer.

Returns

Returns a system.

Implemented in System_Imp.

4.8.3.4 setName()

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

Add a name for the system.

Parameters

name	System name.

Implemented in System_Imp.

4.8.3.5 setValue()

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

Add a value to the system.

Parameters

value	System value.

Implemented in System_Imp.

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

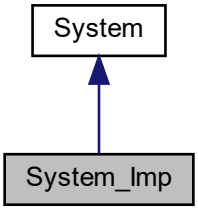
- src/lib/system.h

4.9 System_Imp Class Reference

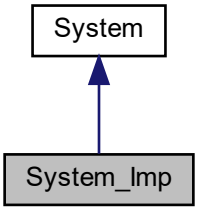
File responsible for project systems.

`#include <system_Imp.h>`

Inheritance diagram for System_Imp:



Collaboration diagram for System_Imp:



Public Member Functions

- System_Imp ()
  Builder to create a new system.
- System_Imp (string, double)
- virtual ~System_Imp ()
  Destructor to destroy the system.
- void setName (string)
  Add a name for the system.
- void setValue (double)
  Add a value to the system.
- double getValue ()
  Function to return system value.
- string getName ()
  Function to return system name.
- System_Imp * operator= (System *)
  Function to overload operator =.

Protected Attributes

- string name
- double value

4.9.1 Detailed Description

File responsible for project systems.

Author

Gabriel Niquini 19.1.4113

Definition at line 12 of file system_Imp.h.

4.9.2 Constructor & Destructor Documentation

4.9.2.1 System_Imp() [1/2]

```
System_Imp::System_Imp ( )
```

Builder to create a new system.

<Double value

Definition at line 3 of file system_Imp.cpp.

4.9.2.2 System_Imp() [2/2]

```
System_Imp::System_Imp (
            string name,
            double value )
```

Definition at line 5 of file system_Imp.cpp.

4.9.2.3 ~System_Imp()

```
System_Imp::~System_Imp ( )  [virtual]
```

Destructor to destroy the system.

Definition at line 10 of file system_Imp.cpp.

4.9.3 Member Function Documentation

4.9.3.1 getName()

```
string System_Imp::getName ( )  [virtual]
```

Function to return system name.

Returns

Returns a string.

Implements System.

Definition at line 20 of file system_Imp.cpp.

4.9.3.2 getValue()

```
double System_Imp::getValue ( )  [virtual]
```

Function to return system value.

Returns

Returns a double.

Implements System.

Definition at line 24 of file system_Imp.cpp.

4.9.3.3 operator=()

```
System_Imp * System_Imp::operator= (
            System * system )  [virtual]
```

Function to overload operator =.

Parameters

flow	System pointer.

Returns

Returns a system.

Implements System.

Definition at line 28 of file system_Imp.cpp.

4.9.3.4 setName()

```
void System_Imp::setName (
            string name )  [virtual]
```

Add a name for the system.

Parameters

name	System name.

Implements System.

Definition at line 12 of file system_Imp.cpp.

4.9.3.5 setValue()

```
void System_Imp::setValue (
            double value )  [virtual]
```

Add a value to the system.

Parameters

value	System value.

Implements System.

Definition at line 16 of file system_Imp.cpp.

4.9.4 Member Data Documentation

4.9.4.1 name

```
string System_Imp::name  [protected]
```

Definition at line 14 of file system_Imp.h.

4.9.4.2 value

```
double System_Imp::value  [protected]
```

<String name

Definition at line 15 of file system_Imp.h.

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

- src/lib/system_Imp.h
- src/lib/system_Imp.cpp

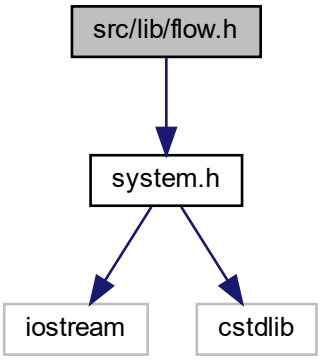
Chapter 5

File Documentation

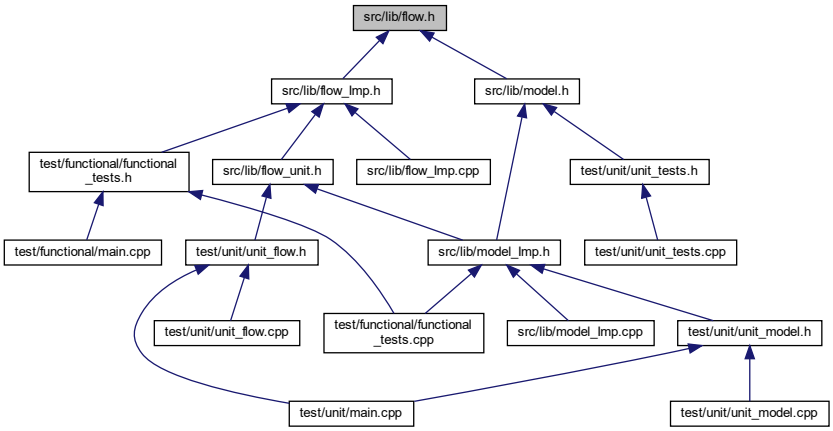
5.1 src/lib/flow.h File Reference

```
#include "system.h"
```

Include dependency graph for flow.h:



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



Classes

- class Flow

  File responsible for project flows.

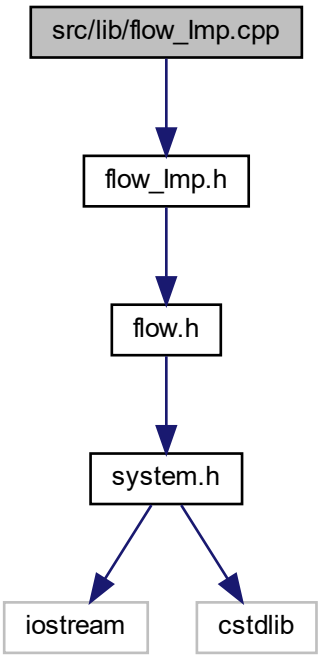
5.2 flow.h

Go to the documentation of this file.

```
00001 #ifndef FLOW_H
00002 #define FLOW_H
00003
00004 #include "system.h"
00005
00012 class Flow{
00013     public:
00018         virtual ~Flow(){};
00019
00025         virtual void setSources(System*) = 0;
00026
00027
00032         virtual void setDestination(System*) = 0;
00033
00039         virtual System* getSource() = 0;
00040
00046         virtual System* getDestination() = 0;
00047
00053         virtual double run() = 0;
00054
00061         virtual Flow* operator=(Flow*) = 0;
00062 };
00063
00064 #endif
```

5.3 src/lib/flow_Imp.cpp File Reference

`#include "flow_Imp.h"`
Include dependency graph for flow_Imp.cpp:



5.4 flow_Imp.cpp

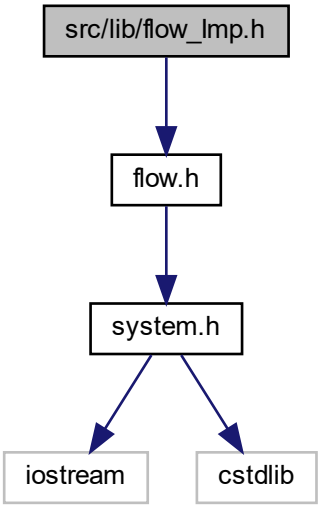
Go to the documentation of this file.

```
00001 #include "flow_Imp.h"
00002
00003 Flow_Imp::Flow_Imp(){}
00004
00005 Flow_Imp::Flow_Imp(System* source, System* destination){
00006     this-> source = source;
00007     this->destination = destination;
00008 }
00009
00010 Flow_Imp::~Flow_Imp(){}
00011
00012 void Flow_Imp::setSources(System* source){
00013     this->source = source;
00014 }
00015
00016 void Flow_Imp::setDestination(System* destination){
00017     this->destination = destination;
00018 }
00019
00020 System* Flow_Imp::getSource(){
00021     return this->source;
00022 }
00023
00024 System* Flow_Imp::getDestination(){
00025     return this->destination;
00026 }
00027
```

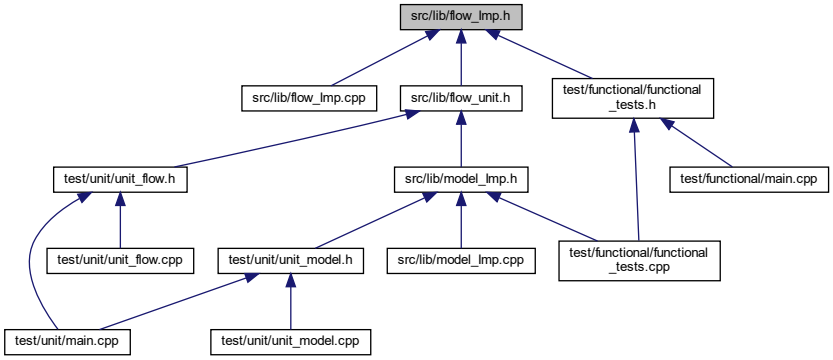
```
00028 Flow_Imp* Flow_Imp::operator=(Flow* flow){
00029     if (this == flow)
00030         return this;
00031 
00032     this->source = flow->getSource();
00033     this->destination = flow->getSource();
00034     return this;
00035 }
```

5.5 src/lib/flow_Imp.h File Reference

`#include "flow.h"`
Include dependency graph for flow_Imp.h:



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



Classes

- class Flow_Imp

  File responsible for project flows.
- class Exponential
- class Logistic

5.6 flow_Imp.h

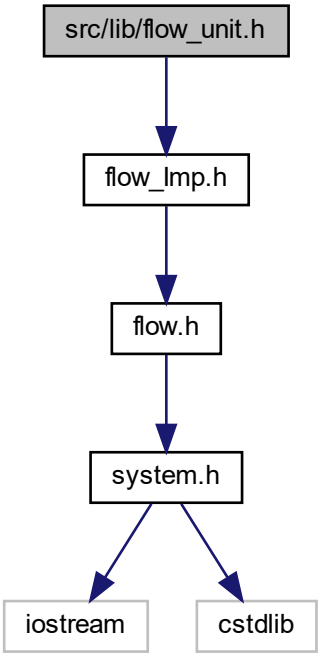
Go to the documentation of this file.

```
00001 #ifndef FLOW_IMP_H
00002 #define FLOW_IMP_H
00003
00004 #include "flow.h"
00005
00012 class Flow_Imp : public Flow{
00013     protected:
00014         System* source;
00015         System* destination;
00016     public:
00021         Flow_Imp();
00022         Flow_Imp(System*, System*);
00023
00028         virtual ~Flow_Imp();
00029
00035         void setSources(System*);
00036
00041         void setDestination(System*);
00042
00048         System* getSource();
00049
00055         System* getDestination();
00056
00062         virtual double run() = 0;
00063
00070         Flow_Imp* operator=(Flow*);
00071 };
00072
00073 class Exponential: public Flow_Imp{
00074     public:
00079     Exponential() {};
00080     Exponential(System* source, System* destination):Flow_Imp(source,destination){};
00081
00087     double run(){
00088         return getSource()->getValue()*0.01;
00089     }
00090 };
00091
00092 class Logistic: public Flow_Imp{
00093     public:
00098     Logistic() {};
00099     Logistic(System* source, System* destination):Flow_Imp(source,destination){};
00100
00106     double run(){
00107         return getDestination()->getValue()*0.01*(1-(getDestination()->getValue())/70);
00108     }
00109 };
00110
00111 #endif
```

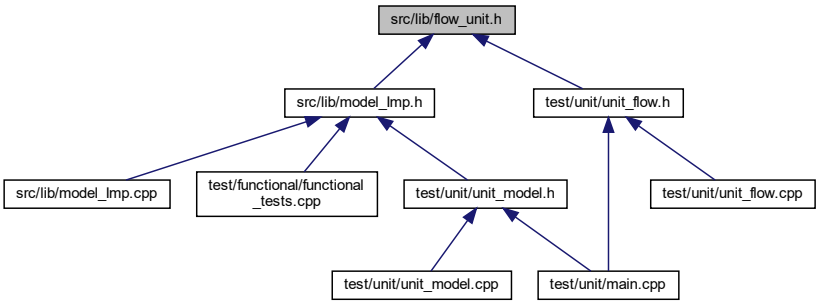
5.7 src/lib/flow_unit.h File Reference

```
#include "flow_Imp.h"
```

Include dependency graph for flow_unit.h:



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



Classes

- class FlowUnit

  File responsible for project flows.

5.8 flow_unit.h

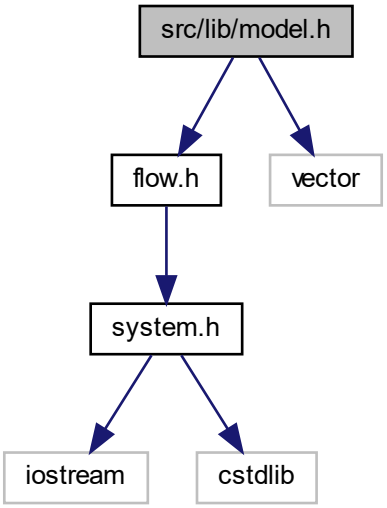
Go to the documentation of this file.

```
00001 #ifndef FLOW_UNIT_H
00002 #define FLOW_UNIT_H
00003
00004 #include "flow_Imp.h"
00005
00012 class FlowUnit : public Flow_Imp{
00018     double run(){
00019         return 0;
00020     }
00021 };
00022
00023 #endif
```

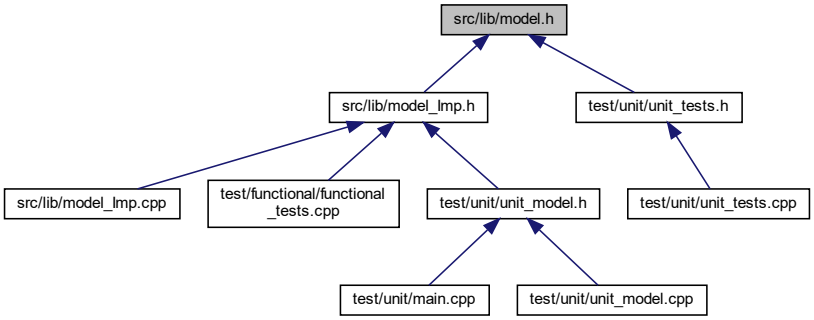
5.9 src/lib/model.h File Reference

```
#include "flow.h"
#include <vector>
```

Include dependency graph for model.h:



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



Classes

- class Model

  File responsible for project templates.

5.10 model.h

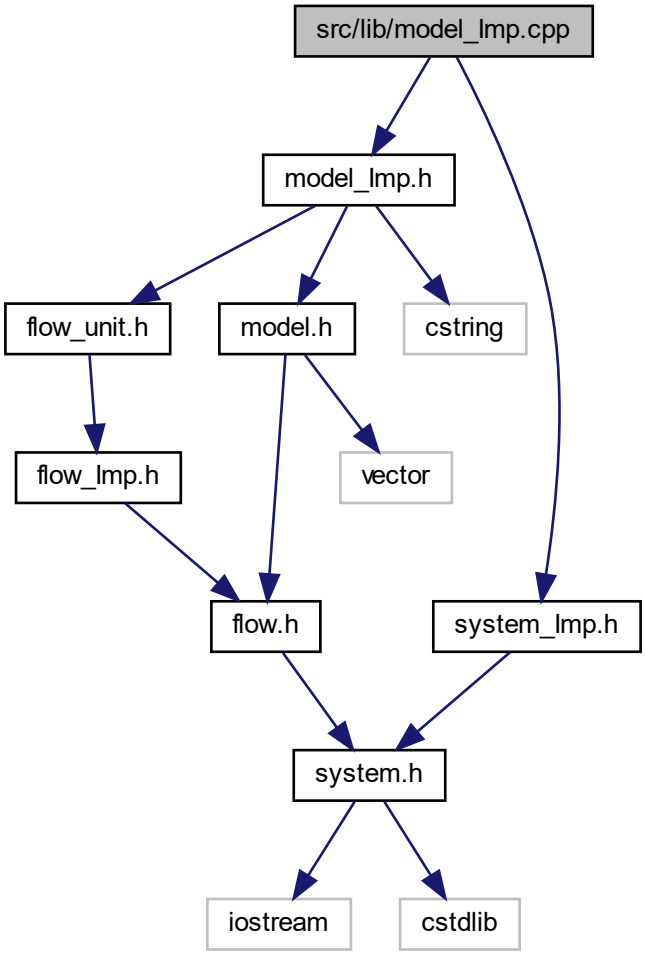
Go to the documentation of this file.

```
00001 #ifndef MODEL_H
00002 #define MODEL_H
00003 #include "flow.h"
00004 #include <vector>
00005
00012 class Model{
00013     public:
00018         virtual ~Model(){};
00019
00027         virtual double run(int,int) = 0;
00028
00035         static Model* createModel(string);
00036         virtual System* createSystem(string,double) = 0;
00037         virtual Model* operator=(Model*) = 0;
00038
00045         virtual System* getSystem(string name) = 0;
00046         virtual vector<Flow*> getFlows() = 0;
00047         template <typename T_FLOW>
00048         Flow* createFlow(System* source = nullptr, System* destination = nullptr){
00049             Flow* flow = new T_FLOW();
00050             flow->setSources(source);
00051             flow->setDestination(destination);
00052             add(flow);
00053             return flow;
00054         }
00055
00056     private:
00061         virtual void add(System*) = 0;
00062
00067         virtual void add(Flow*) = 0;
00068 };
00069
00070 #endif
```

5.11 src/lib/model_Imp.cpp File Reference

```
#include "model_Imp.h"
#include "system_Imp.h"
```

Include dependency graph for model_Imp.cpp:



5.12 model_Imp.cpp

Go to the documentation of this file.

```
00001 #include "model_Imp.h"
00002 #include "system_Imp.h"
00003
00004 //Global Variable
00005 vector<Model*> Model_Imp:: models;
00006
00007 Model_Imp::Model_Imp(){}
00008
00009 Model_Imp::Model_Imp(string id){
00010     this->id = id;
00011 }
```

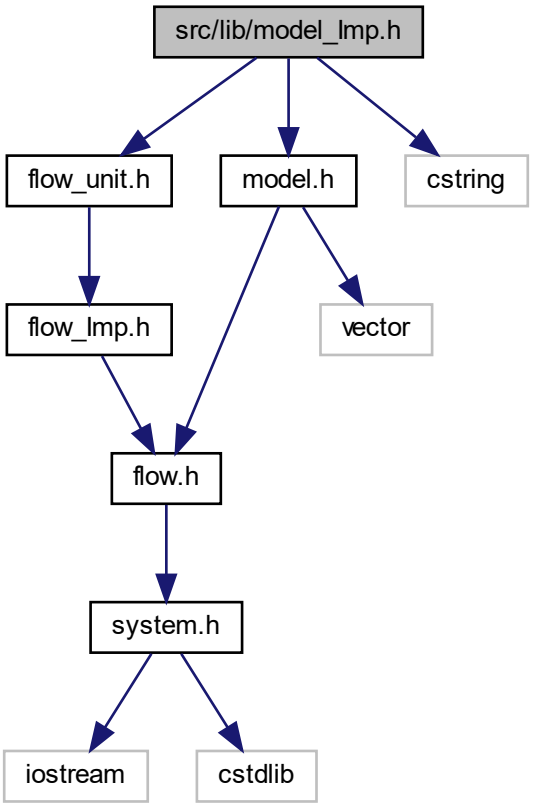
```
00012
00013 Model_Imp::~Model_Imp(){
00014     for (auto it = flows.begin(); it != flows.end(); it++)
00015         delete *it;
00016     for (auto it = systems.begin(); it != systems.end(); it++)
00017         delete *it;
00018     this->flows.clear();
00019     this->systems.clear();
00020
00021 }
00022
00023 Model* Model::createModel(string id){
00024     return Model_Imp::createModel(id);
00025 }
00026
00027 Model* Model_Imp::createModel(string id){
00028     Model* m = new Model_Imp(id);
00029     models.push_back(m);
00030     return m;
00031 }
00032
00033 double Model_Imp::run(int start,int finish){
00034     vector<double> values;
00035     System* source;
00036     System* destination;
00037
00038     int size = flows.size();
00039
00040     for (int i = start; i < finish; i++){
00041         for(int j = 0; j < size; j++){
00042             values.push_back(flows[j]->run());
00043         }
00044         for(int k = 0; k < size; k++){
00045             source = flows[k]->getSource();
00046             source->setValue(source->getValue() - values[k]);
00047             destination = flows[k]->getDestination();
00048             destination->setValue(destination->getValue() + values[k]);
00049         }
00050         values.clear();
00051     }
00052
00053     return values[finish];
00054 }
00055
00056 System* Model_Imp::createSystem(string name, double value){
00057     System* s = new System_Imp(name,value);
00058     this->add(s);
00059     return s;
00060 }
00061
00062 void Model_Imp::add(System* system){
00063     this->systems.push_back(system);
00064 }
00065
00066 void Model_Imp::add(Flow* flow){
00067     this->flows.push_back(flow);
00068 }
00069
00070 System* Model_Imp::getSystem(string name){
00071     for(vector<System*>::iterator it= systems.begin(); it != systems.end(); it++){
00072         if(name == (*it)->getName())
00073             return *it;
00074     }
00075     return NULL;
00076 }
00077
00078 vector<Flow*> Model_Imp::getFlows(){
00079     return this->flows;
00080 }
00081
00082 Model_Imp* Model_Imp::operator=(Model* model){
00083     if(this == model)
00084         return this;
00085
00086     for(vector<System*>::iterator it= systems.begin(); it != systems.end(); it++){
00087         delete *it;
00088     }
00089
00090     this->systems.clear();
00091
00092     for(vector<Flow*>::iterator it= flows.begin(); it != flows.end(); it++){
00093         delete *it;
00094     }
00095
00096     this->flows.clear();
00097
00098     return this;
```

```
00099 }
```

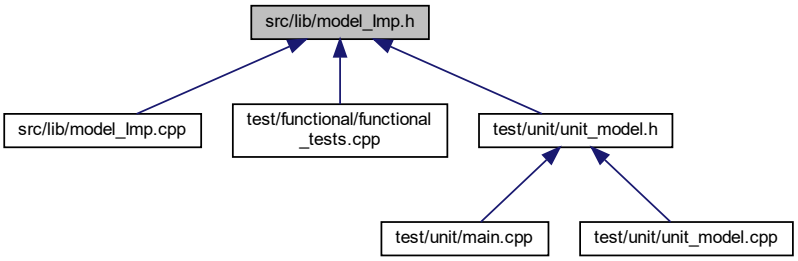
5.13 src/lib/model_lmp.h File Reference

```
#include "flow_unit.h"
#include "model.h"
#include <cstring>
```

Include dependency graph for model_lmp.h:



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



Classes

- class Model_Imp

  File responsible for project templates.

5.14 model_lmp.h

Go to the documentation of this file.

```
00001 #ifndef MODEL_IMP_H
00002 #define MODEL_IMP_H
00003
00004 #include "flow_unit.h"
00005 #include "model.h"
00006 #include <cstring>
00007
00008
00015 class Model_Imp : public Model{
00016     protected:
00017         vector<Flow*> flows;
00018         vector<System*> systems;
00019         static vector<Model*> models;
00020     public:
00025         Model_Imp();
00026
00027         Model_Imp(string);
00028
00033         virtual ~Model_Imp();
00034
00035         static Model* createModel(string);
00036
00044         double run(int,int);
00045
00046         System* createSystem(string,double);
00047
00054         System* getSystem(string name);
00055         vector<Flow*> getFlows();
00056         Model_Imp* operator=(Model*);
00057
00058     private:
00063         void add(System*);
00064
00069         void add(Flow*);
00070         string id;
00071 };
00072
00073 #endif
```

5.15 src/lib/mySim.cpp File Reference

5.16 mySim.cpp

Go to the documentation of this file.

5.17 src/lib/mySlim.h File Reference

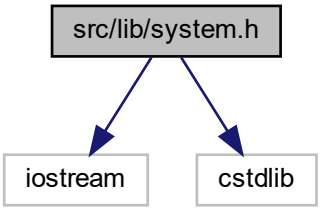
5.18 mySlim.h

Go to the documentation of this file.

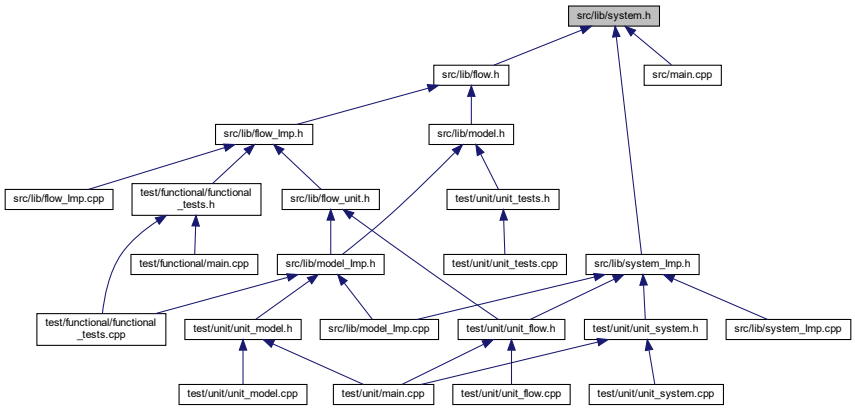
5.19 src/lib/system.h File Reference

```
#include <iostream>
#include <cstdlib>
```

Include dependency graph for system.h:



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



Classes

- class System

  File responsible for project systems.

5.20 system.h

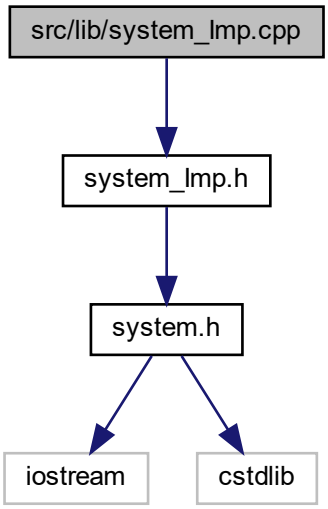
Go to the documentation of this file.

```
00001 #ifndef SYSTEM_H
00002 #define SYSTEM_H
00003
00004 #include <iostream>
00005 #include <cstdlib>
00006
00007 using namespace std;
00008
00015 class System{
00016     public:
00021         virtual ~System(){};
00022
00027         virtual void setName(string) = 0;
00028
00033         virtual void setValue(double) = 0;
00034
00040         virtual double getValue() = 0;
00041
00047         virtual string getName() = 0;
00048
00055         virtual System* operator=(System*) = 0;
00056 };
00057
00058 #endif
```

5.21 src/lib/system_Imp.cpp File Reference

`#include "system_Imp.h"`

Include dependency graph for system_Imp.cpp:



5.22 system_Imp.cpp

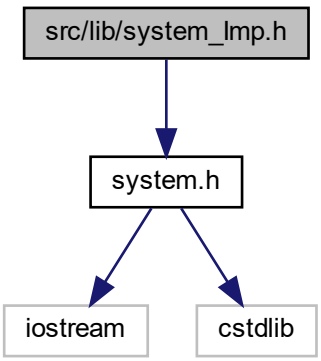
Go to the documentation of this file.

```
00001 #include "system_Imp.h"
00002
00003 System_Imp::System_Imp(){}
00004
00005 System_Imp::System_Imp(string name, double value){
00006     this->name = name;
00007     this->value = value;
00008 }
00009
00010 System_Imp::~System_Imp(){}
00011
00012 void System_Imp::setName(string name){
00013     this->name = name;
00014 }
00015
00016 void System_Imp::setValue(double value){
00017     this->value = value;
00018 }
00019
00020 string System_Imp::getName(){
00021     return this->name;
00022 }
00023
00024 double System_Imp::getValue(){
00025     return this->value;
00026 }
00027
00028 System_Imp* System_Imp::operator=(System* system){
00029     if (this == system)
00030         return this;
00031     this->name = system->getName();
00032     this->value = system->getValue();
00033     return this;
00034 }
```

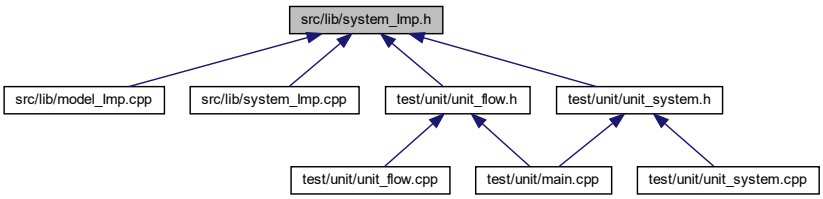
5.23 src/lib/system_Imp.h File Reference

`#include "system.h"`

Include dependency graph for system_Imp.h:



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



Classes

- class System_Imp

  File responsible for project systems.

5.24 system_Imp.h

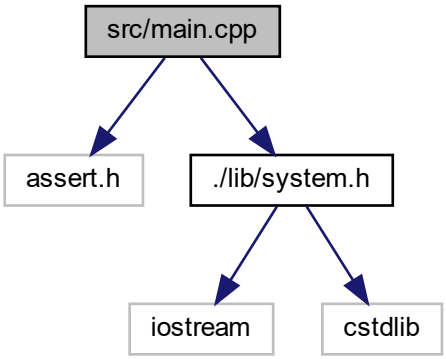
Go to the documentation of this file.

```
00001 #ifndef SYSTEM_IMP_H
00002 #define SYSTEM_IMP_H
00003
00004 #include "system.h"
00005
00012 class System_Imp : public System{
00013     protected:
00014         string name;
00015         double value;
00016     public:
00021         System_Imp();
00022         System_Imp(string,double);
00023
00028         virtual ~System_Imp();
00029
00034         void setName(string);
00035
00040         void setValue(double);
00041
00047         double getValue();
00048
00054         string getName();
00055
00062         System_Imp* operator=(System*);
00063 };
00064
00065 #endif
```

5.25 src/main.cpp File Reference

```
#include <assert.h>
#include "./lib/system.h"
```

Include dependency graph for main.cpp:



Functions

- int main ()

5.25.1 Function Documentation

5.25.1.1 main()

```
int main ( )
```

Definition at line 4 of file main.cpp.

5.26 main.cpp

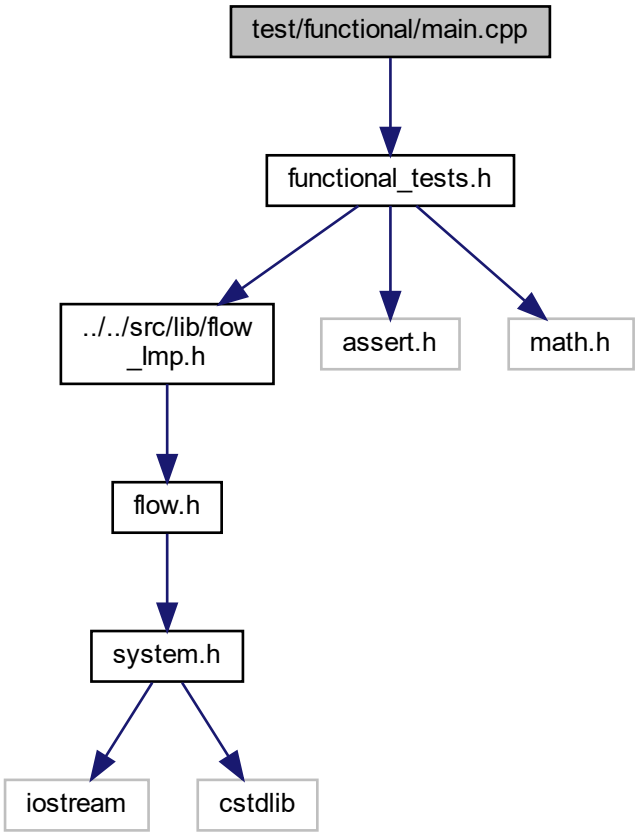
Go to the documentation of this file.

```
00001 #include <assert.h>
00002 #include "./lib/system.h"
00003
00004 int main () { return 0; }
```

5.27 test/functional/main.cpp File Reference

```
#include "functional_tests.h"
```

Include dependency graph for main.cpp:



Functions

- int main ()

5.27.1 Function Documentation

5.27.1.1 main()

```
int main ( )
```

Definition at line 3 of file main.cpp.

5.28 main.cpp

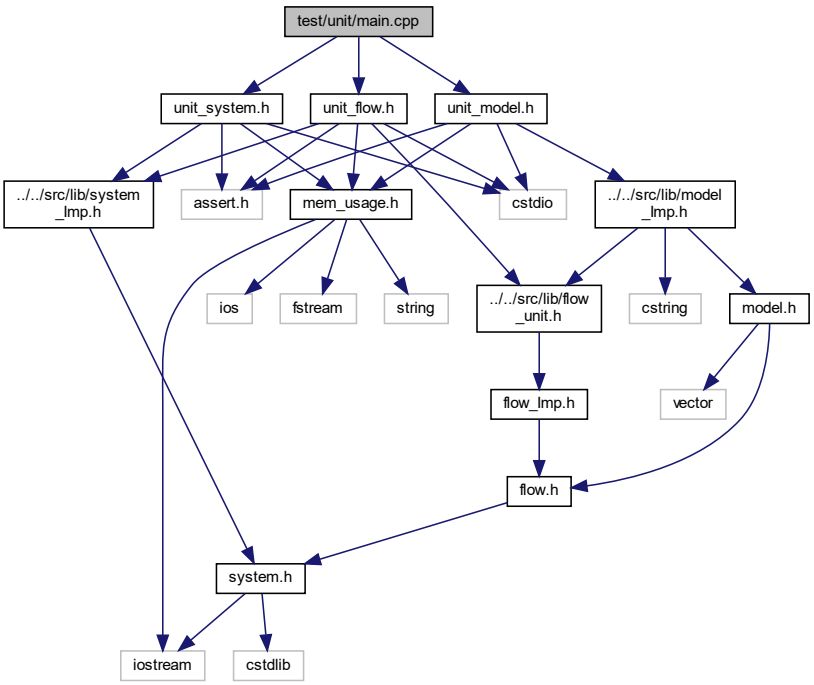
Go to the documentation of this file.

```
00001 #include "functional_tests.h"
00002
00003 int main () {
00004
00005     exponentialFuncionalTest();
00006     logisticalFuncionalTest();
00007     complexFuncionalTest();
00008
00009     return 0;
00010 }
```

5.29 test/unit/main.cpp File Reference

```
#include "unit_system.h"
#include "unit_flow.h"
#include "unit_model.h"
```

Include dependency graph for main.cpp:



Functions

- int main ()

5.29.1 Function Documentation

5.29.1.1 main()

```
int main ( )
```

Definition at line 5 of file main.cpp.

5.30 main.cpp

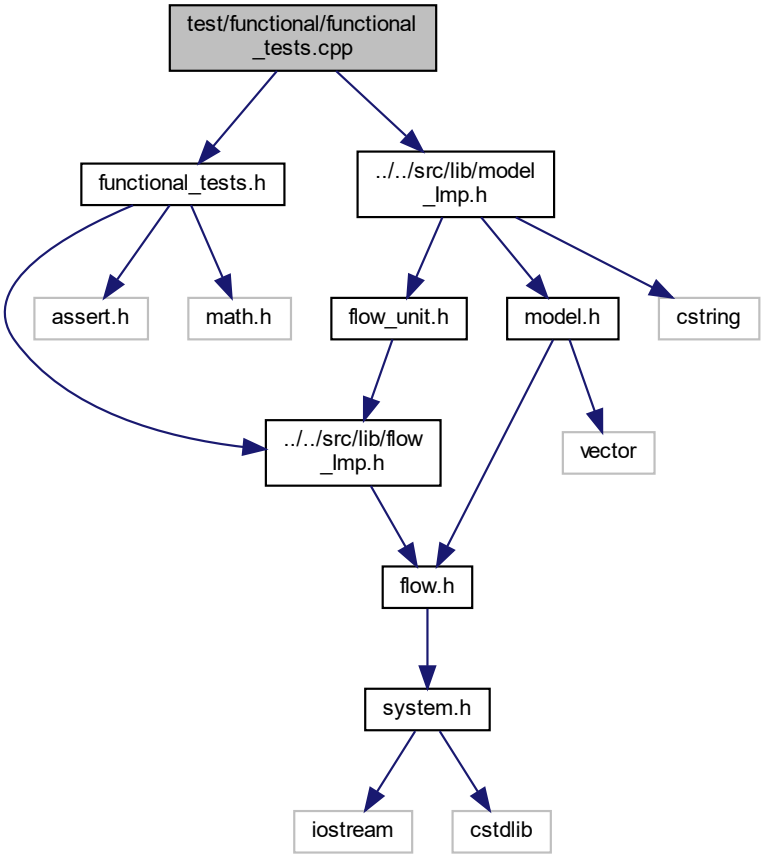
Go to the documentation of this file.

```
00001 #include "unit_system.h"
00002 #include "unit_flow.h"
00003 #include "unit_model.h"
00004
00005 int main (){
00006
00007     run_unit_test_System();
00008     run_unit_test_Flow();
00009     run_unit_test_Model();
00010
00011     return 0;
00012 }
```

5.31 test/functional/functional_tests.cpp File Reference

```
#include "functional_tests.h"
#include "../../src/lib/model_Imp.h"
```

Include dependency graph for functional_tests.cpp:



Functions

- void exponentialFuncionalTest ()

  File responsible for functional testing.
- void logisticalFuncionalTest ()

  Logistics functional test.
- void complexFuncionalTest ()

  Complex functional test.

5.31.1 Function Documentation

5.31.1.1 complexFuncionalTest()

```
void complexFuncionalTest ( )
```

Complex functional test.

Definition at line 29 of file functional_tests.cpp.

5.31.1.2 exponentialFuncionalTest()

```
void exponentialFuncionalTest ( )
```

File responsible for functional testing.

Author

Gabriel Niquini 19.1.4113

Exponential functional test.

Definition at line 4 of file functional_tests.cpp.

5.31.1.3 logisticalFuncionalTest()

```
void logisticalFuncionalTest ( )
```

Logistics functional test.

Definition at line 16 of file functional_tests.cpp.

5.32 functional_tests.cpp

Go to the documentation of this file.

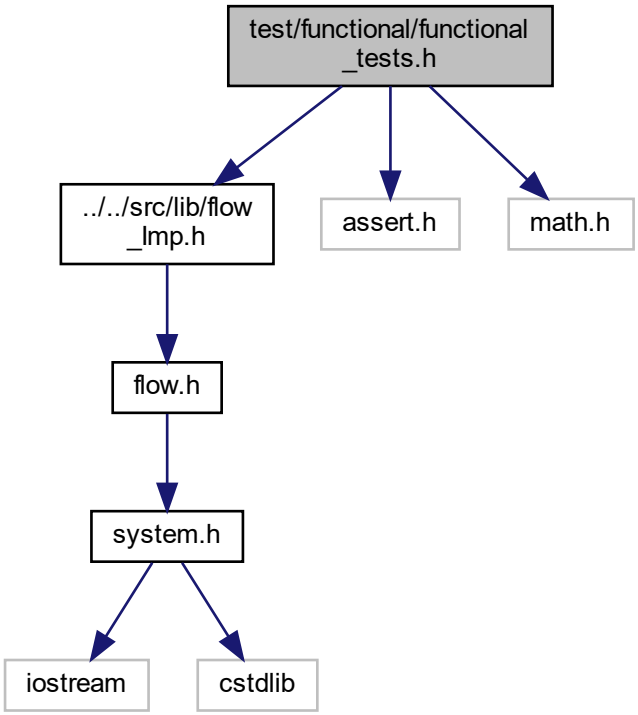
```
00001 #include "functional_tests.h"
00002 #include "../../src/lib/model_Imp.h"
00003
00004 void exponentialFuncionalTest(){
00005     Model* Modelexponential = Model::createModel("Model pops");
00006     System* pop1 =  Modelexponential->createSystem("pop1", 100.0);
00007     System* pop2 =  Modelexponential->createSystem("pop2", 0.0);
00008     Flow* f = Modelexponential->createFlow<Exponential>(pop1,pop2);
00009     Modelexponential->run(0,100);
00010     assert(abs(pop1->getValue() - 36.6032) < 0.0001);
00011     assert(abs(pop2->getValue() - 63.3968) < 0.0001);
00012
00013     cout « endl « "Exponential test OK!" « endl;
00014 }
00015
00016 void logisticalFuncionalTest(){
00017     Model* ModelLogistic = Model::createModel("Model Logistic");
00018     System* p1 = ModelLogistic->createSystem("p1", 100.0);
00019     System* p2 = ModelLogistic->createSystem("p2", 10.0);
00020     Flow* l = ModelLogistic->createFlow<Logistic>(p1,p2);
00021     ModelLogistic->run(0,100);
00022
00023     assert(abs(p1->getValue() - 88.2167) < 0.0001);
00024     assert(abs(p2->getValue() - 21.7834) < 0.0001);
00025
00026     cout « endl « "Logistic test OK!" « endl;
00027 }
00028
00029 void complexFuncionalTest(){
00030     Model* model = Model::createModel("Model Complex");
00031     System* q1 =  model->createSystem("q1", 100.0);
00032     System* q2 =  model->createSystem("q2", 0.0);
00033     System* q3 =  model->createSystem("q3", 100.0);
00034     System* q4 =  model->createSystem("q4", 0.0);
00035     System* q5 =  model->createSystem("q5", 0.0);
00036
00037     Flow* f = model->createFlow<Exponential>(q1,q2);
00038     Flow* g = model->createFlow<Exponential>(q1,q3);
00039     Flow* r = model->createFlow<Exponential>(q2,q5);
```

```
00040     Flow* t = model->createFlow<Exponential>(q2,q3);
00041     Flow* u = model->createFlow<Exponential>(q3,q4);
00042     Flow* v = model->createFlow<Exponential>(q4,q1);
00043
00044     model->run(0,100);
00045
00046     assert(abs((q1->getValue() - 31.8513)) < 0.0001);
00047     assert(abs((q2->getValue() - 18.4003)) < 0.0001);
00048     assert(abs((q3->getValue() - 77.1143)) < 0.0001);
00049     assert(abs((q4->getValue() - 56.1728)) < 0.0001);
00050     assert(abs((q5->getValue() - 16.4612)) < 0.0001);
00051
00052     cout « endl « "Complex test OK!" « endl;
00053 }
```

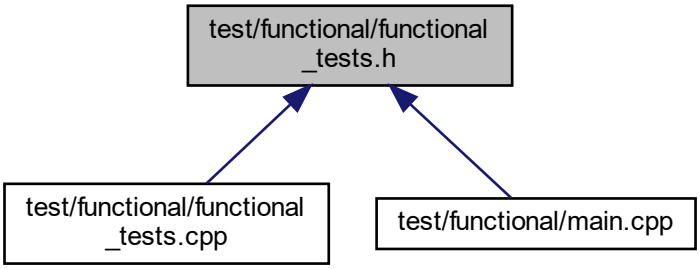
5.33 test/functional/functional_tests.h File Reference

```
#include "../../src/lib/flow_Imp.h"
#include <assert.h>
#include <math.h>
```

Include dependency graph for functional_tests.h:



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



Functions

- void exponentialFuncionalTest ()

  File responsible for functional testing.
- void logisticalFuncionalTest ()

  Logistics functional test.
- void complexFuncionalTest ()

  Complex functional test.

5.33.1 Function Documentation

5.33.1.1 complexFuncionalTest()

```
void complexFuncionalTest ( )
```

Complex functional test.

Definition at line 29 of file functional_tests.cpp.

5.33.1.2 exponentialFuncionalTest()

```
void exponentialFuncionalTest ( )
```

File responsible for functional testing.

Author

Gabriel Niquini 19.1.4113

Exponential functional test.

Definition at line 4 of file functional_tests.cpp.

5.33.1.3 logisticalFuncionalTest()

```
void logisticalFuncionalTest ( )
```

Logistics functional test.

Definition at line 16 of file functional_tests.cpp.

5.34 functional_tests.h

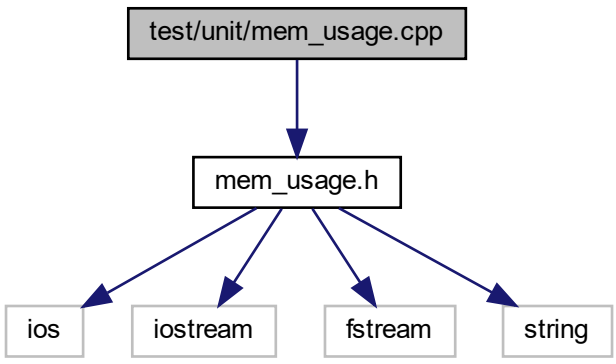
Go to the documentation of this file.

```
00001 #ifndef FUNCTIONAL_TESTS_H
00002 #define FUNCTIONAL_TESTS_H
00003 #include "../../src/lib/flow_Imp.h"
00004
00005 #include <assert.h>
00006 #include <math.h>
00007
00008
00019 void exponentialFuncionalTest();
00020
00025 void logisticalFuncionalTest();
00026
00031 void complexFuncionalTest();
00032
00033 #endif
```

5.35 test/unit/mem_usage.cpp File Reference

```
#include "mem_usage.h"
```

Include dependency graph for mem_usage.cpp:



Functions

- void mem_usage (double &vm_usage, double &resident_set)

5.35.1 Function Documentation

5.35.1.1 mem_usage()

```
void mem_usage (
             double & vm_usage,
             double & resident_set )
```

Definition at line 3 of file mem_usage.cpp.

5.36 mem_usage.cpp

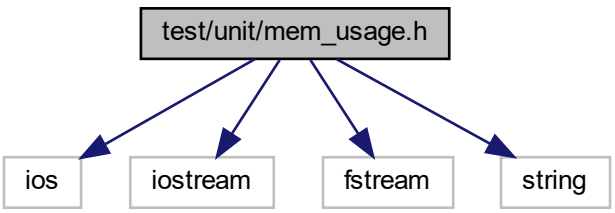
Go to the documentation of this file.

```
00001 #include "mem_usage.h"
00002
00003 void mem_usage(double& vm_usage, double& resident_set) {
00004    vm_usage = 0.0;
00005    resident_set = 0.0;
00006    ifstream stat_stream("/proc/self/stat",ios_base::in); //get info from proc directory
00007
00008    //create some variables to get info
00009    string pid, comm, state, ppid, pgrp, session, tty_nr;
00010    string tpgid, flags, minflt, cminflt, majflt, cmajflt;
00011    string utime, stime, cutime, cstime, priority, nice;
00012    string O, itrealvalue, starttime;
00013    unsigned long vsize;
00014    long rss;
00015
00016    stat_stream » pid » comm » state » ppid » pgrp » session » tty_nr
00017    » tpgid » flags » minflt » cminflt » majflt » cmajflt
00018    » utime » stime » cutime » cstime » priority » nice
00019    » O » itrealvalue » starttime » vsize » rss; // don't care  about the rest
00020
00021    stat_stream.close();
00022    vm_usage = vsize / 1024.0;
00023 }
```

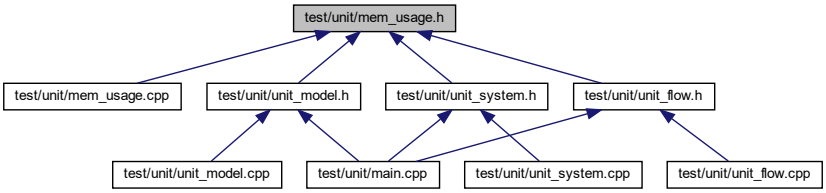
5.37 test/unit/mem_usage.h File Reference

```
#include <ios>
#include <iostream>
#include <fstream>
#include <string>
```

Include dependency graph for mem_usage.h:



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



Functions

- void mem_usage (double &vm_usage, double &resident_set)

5.37.1 Function Documentation

5.37.1.1 mem_usage()

```
void mem_usage (
            double & vm_usage,
            double & resident_set )
```

Definition at line 3 of file mem_usage.cpp.

5.38 mem_usage.h

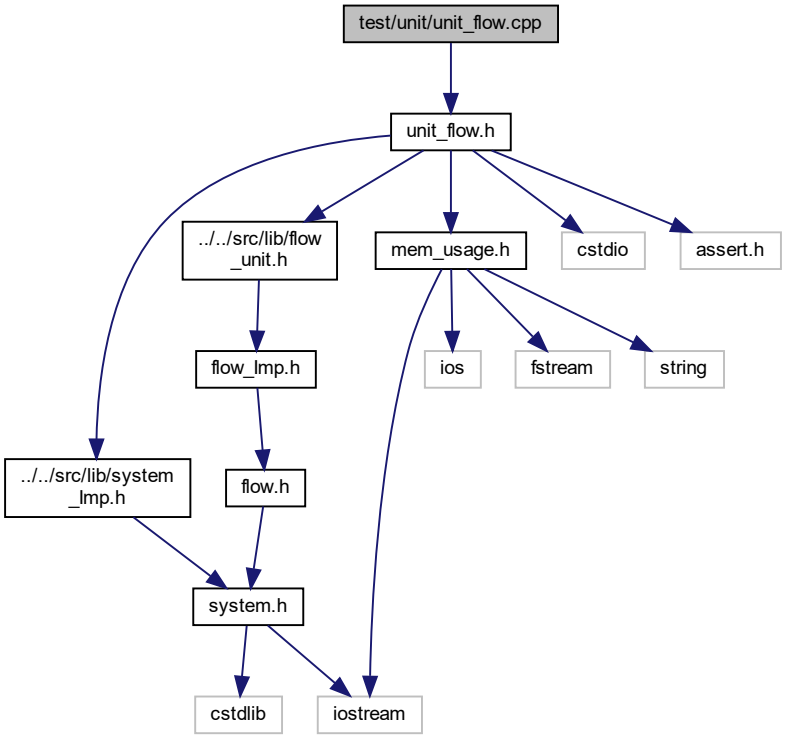
Go to the documentation of this file.

```
00001 #include <ios>
00002 #include <iostream>
00003 #include <fstream>
00004 #include <string>
00005
00006 using namespace std;
00007
00008 void mem_usage(double& vm_usage, double& resident_set);
```

5.39 test/unit/unit_flow.cpp File Reference

```
#include "unit_flow.h"
```

Include dependency graph for unit_flow.cpp:



Functions

- void unit_Flow_constructor (void)
- void unit_Flow_destructor (void)
- void unit_Flow_setSource (void)
- void unit_Flow_setDestination (void)
- void unit_Flow_getSource (void)
- void unit_Flow_getDestination (void)
- void unit_Flow_operator (void)
- void run_unit_test_Flow (void)

5.39.1 Function Documentation

5.39.1.1 run_unit_test_Flow()

```
void run_unit_test_Flow (
            void  )
```

Definition at line 64 of file unit_flow.cpp.

5.39.1.2 unit_Flow_constructor()

```
void unit_Flow_constructor (
            void  )
```

Definition at line 3 of file unit_flow.cpp.

5.39.1.3 unit_Flow_destructor()

```
void unit_Flow_destructor (
            void  )
```

Definition at line 10 of file unit_flow.cpp.

5.39.1.4 unit_Flow_getDestination()

```
void unit_Flow_getDestination (
            void  )
```

Definition at line 49 of file unit_flow.cpp.

5.39.1.5 unit_Flow_getSource()

```
void unit_Flow_getSource (
            void  )
```

Definition at line 42 of file unit_flow.cpp.

5.39.1.6 unit_Flow_operator()

```
void unit_Flow_operator (
            void  )
```

Definition at line 56 of file unit_flow.cpp.

5.39.1.7 unit_Flow_setDestination()

```
void unit_Flow_setDestination (
            void  )
```

Definition at line 33 of file unit_flow.cpp.

5.39.1.8 unit_Flow_setSource()

```
void unit_Flow_setSource (
            void  )
```

Definition at line 24 of file unit_flow.cpp.

5.40 unit_flow.cpp

Go to the documentation of this file.

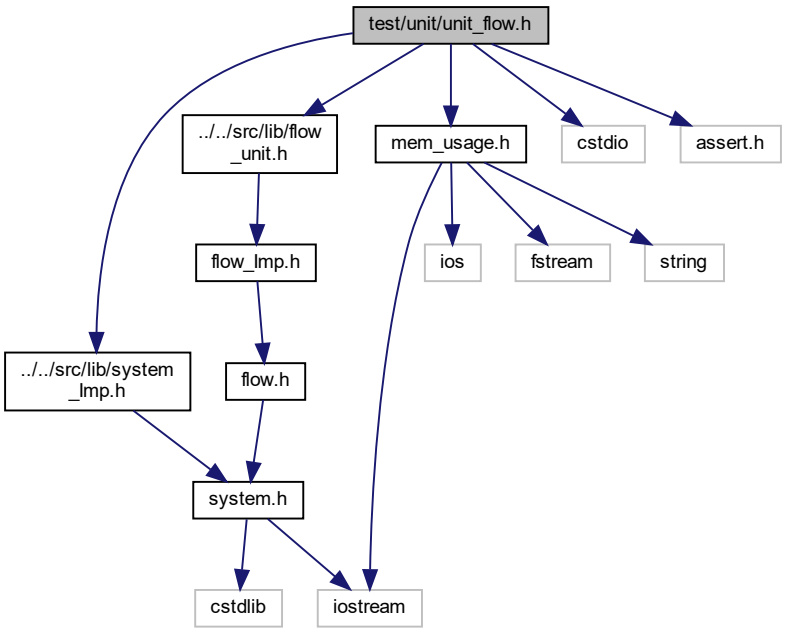
```
00001 #include "unit_flow.h"
00002
00003 void unit_Flow_constructor(void){
00004     System*s = new System_Imp("n1",40);
00005     System*t = new System_Imp("n2",6);
00006     Flow* f = new Logistic(s,t);
00007     assert(f->getDestination()==t);
00008 }
00009
00010 void unit_Flow_destructor(void){
00011     double memoryBefore, memoryAfter, rss;
00012
00013     mem_usage(memoryBefore, rss);
00014
00015     Flow* f = new FlowUnit();
00016     delete f;
00017
00018     mem_usage(memoryAfter, rss);
00019
00020     assert(memoryBefore == memoryAfter);
00021     cout « "Verification: destructor of Flow. OK!" « endl;
00022 }
00023
00024 void unit_Flow_setSource(void){
00025     Flow* f = new FlowUnit();
00026     System* destination = new System_Imp();
00027     System* source = new System_Imp();
00028     f->setDestination(destination);
00029     f->setSources(source);
00030     assert(f->getSource() == source);
00031 }
00032
00033 void unit_Flow_setDestination(void){
00034     Flow* f = new FlowUnit();
00035     System* destination = new System_Imp();
00036     System* source = new System_Imp();
00037     f->setDestination(destination);
00038     f->setSources(source);
00039     assert(f->getDestination() == destination);
00040 }
00041
00042 void unit_Flow_getSource(void){
00043     System* s1 = new System_Imp();
00044     System* s2 = new System_Imp();
00045     Flow* f = new Exponential(s1,s2);
00046     assert(f->getSource() == s1);
00047 }
00048
00049 void unit_Flow_getDestination(void){
00050     System* s1 = new System_Imp();
00051     System* s2 = new System_Imp();
00052     Flow* f = new Exponential(s1,s2);
```

```
00053     assert(f->getDestination() == s2);
00054 }
00055
00056 void unit_Flow_operator(void){
00057     System* s1 = new System_Imp();
00058     System* s2 = new System_Imp();
00059     Flow* f = new Exponential(s1,s2);
00060     Flow* test = f;
00061     assert(f->getDestination() == test->getDestination());
00062 }
00063
00064 void run_unit_test_Flow(void){
00065     unit_Flow_constructor();
00066     unit_Flow_destructor();
00067     unit_Flow_setSource();
00068     unit_Flow_setDestination();
00069     unit_Flow_getSource();
00070     unit_Flow_getDestination();
00071     unit_Flow_operator();
00072 }
```

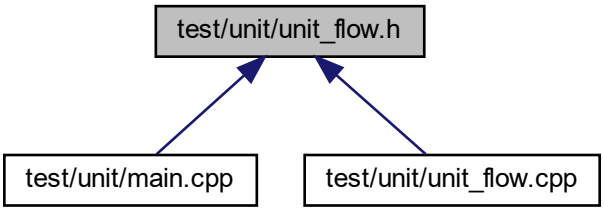
5.41 test/unit/unit_flow.h File Reference

```
#include "../../src/lib/system_Imp.h"
#include "../../src/lib/flow_unit.h"
#include "mem_usage.h"
#include <cstdio>
#include <assert.h>
```

Include dependency graph for unit_flow.h:



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



Functions

- void unit_Flow_constructor (void)
- void unit_Flow_destructor (void)
- void unit_Flow_setSource (void)
- void unit_Flow_setDestination (void)
- void unit_Flow_getSource (void)
- void unit_Flow_getDestination (void)
- void unit_Flow_operator (void)
- void run_unit_test_Flow (void)

5.41.1 Function Documentation

5.41.1.1 run_unit_test_Flow()

```
void run_unit_test_Flow (
              void  )
```

Definition at line 64 of file unit_flow.cpp.

5.41.1.2 unit_Flow_constructor()

```
void unit_Flow_constructor (
              void  )
```

Definition at line 3 of file unit_flow.cpp.

5.41.1.3 unit_Flow_destructor()

```
void unit_Flow_destructor (
            void  )
```

Definition at line 10 of file unit_flow.cpp.

5.41.1.4 unit_Flow_getDestination()

```
void unit_Flow_getDestination (
            void  )
```

Definition at line 49 of file unit_flow.cpp.

5.41.1.5 unit_Flow_getSource()

```
void unit_Flow_getSource (
            void  )
```

Definition at line 42 of file unit_flow.cpp.

5.41.1.6 unit_Flow_operator()

```
void unit_Flow_operator (
            void  )
```

Definition at line 56 of file unit_flow.cpp.

5.41.1.7 unit_Flow_setDestination()

```
void unit_Flow_setDestination (
            void  )
```

Definition at line 33 of file unit_flow.cpp.

5.41.1.8 unit_Flow_setSource()

```
void unit_Flow_setSource (
            void  )
```

Definition at line 24 of file unit_flow.cpp.

5.42 unit_flow.h

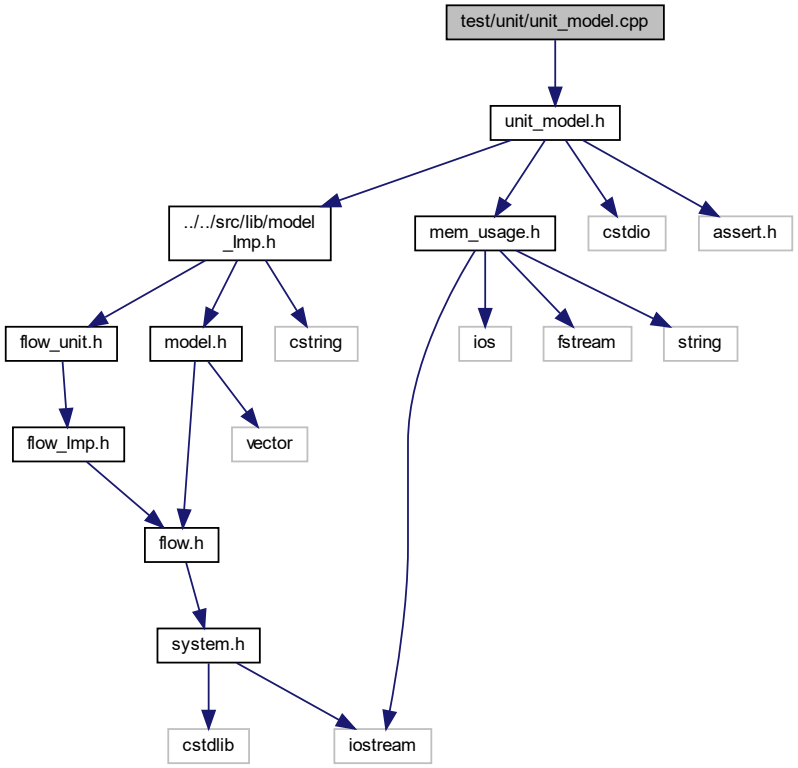
Go to the documentation of this file.

```
00001 #ifndef UNIT_FLOW_H
00002 #define UNIT_FLOW_H
00003
00004 #include "../../src/lib/system_Imp.h"
00005 #include "../../src/lib/flow_unit.h"
00006 #include "mem_usage.h"
00007
00008 #include <cstdio>
00009 #include <assert.h>
00010
00011 void unit_Flow_constructor(void);
00012 void unit_Flow_destructor(void);
00013 void unit_Flow_setSource(void);
00014 void unit_Flow_setDestination(void);
00015 void unit_Flow_getSource(void);
00016 void unit_Flow_getDestination(void);
00017 void unit_Flow_operator(void);
00018 void run_unit_test_Flow(void);
00019
00020 #endif
```

5.43 test/unit/unit_model.cpp File Reference

`#include "unit_model.h"`

Include dependency graph for unit_model.cpp:



Functions

- void unit_Model_constructor (void)
- void unit_Model_destructor (void)
- void unit_Model_run (void)
- void unit_Model_add_System (void)
- void unit_Model_add_Flow (void)
- void run_unit_test_Model ()

5.43.1 Function Documentation

5.43.1.1 run_unit_test_Model()

```
void run_unit_test_Model (
             void  )
```

Definition at line 52 of file unit_model.cpp.

5.43.1.2 unit_Model_add_Flow()

```
void unit_Model_add_Flow (
             void  )
```

Definition at line 44 of file unit_model.cpp.

5.43.1.3 unit_Model_add_System()

```
void unit_Model_add_System (
             void  )
```

Definition at line 37 of file unit_model.cpp.

5.43.1.4 unit_Model_constructor()

```
void unit_Model_constructor (
             void  )
```

Definition at line 3 of file unit_model.cpp.

5.43.1.5 unit_Model_destructor()

```
void unit_Model_destructor (
            void  )
```

Definition at line 10 of file unit_model.cpp.

5.43.1.6 unit_Model_run()

```
void unit_Model_run (
            void  )
```

Definition at line 24 of file unit_model.cpp.

5.44 unit_model.cpp

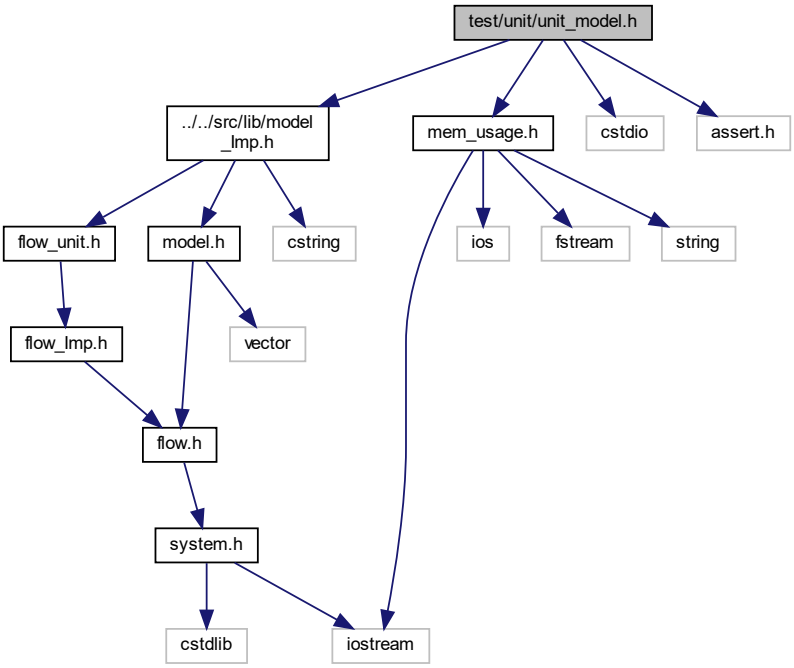
Go to the documentation of this file.

```
00001 #include "unit_model.h"
00002
00003 void unit_Model_constructor(void){
00004     Model* m = Model::createModel("test model");
00005     System* s;
00006     s = m->createSystem("system",10.0 );
00007     assert(m->getSystem("system") == s);
00008 }
00009
00010 void unit_Model_destructor(void){
00011     double memoryBefore, memoryAfter, rss;
00012
00013     mem_usage(memoryBefore, rss);
00014
00015     Model* m = new Model_Imp();
00016     delete m;
00017
00018     mem_usage(memoryAfter, rss);
00019
00020     assert(memoryBefore == memoryAfter);
00021     cout « "Verification: destructor of Model. OK!" « endl;
00022 }
00023
00024 void unit_Model_run(void){
00025     Model* Modelexponential = Model_Imp::createModel("Model pops");
00026     System* pop1;
00027     System* pop2;
00028     Flow* f;
00029     pop1 =  Modelexponential->createSystem("pop1", 100.0);
00030     pop2 =  Modelexponential->createSystem("pop2", 0.0);
00031     f = Modelexponential->createFlow<Exponential>(pop1,pop2);
00032     Modelexponential->run(0,100);
00033     assert((pop1->getValue() - 36.6032) < 0.0001);
00034     assert((pop2->getValue() - 63.3968) < 0.0001);
00035 }
00036
00037 void unit_Model_add_System(void){
00038     Model* m = Model::createModel("test add");
00039     System* s;
00040     s = m->createSystem("testSystem",0);
00041     assert(m->getSystem("testSystem") == s);
00042 }
00043
00044 void unit_Model_add_Flow(void){
00045     Model* m = Model::createModel("test add");
00046     System* s;
00047     System* s2;
00048     Flow* f = m->createFlow<Logistic>(s,s2);
00049     assert(m->getFlows().empty() == 0);
00050 }
00051
00052 void run_unit_test_Model(){
00053     unit_Model_constructor();
00054     unit_Model_destructor();
00055     unit_Model_run();
00056     unit_Model_add_System();
00057     unit_Model_add_Flow();
00058 }
```

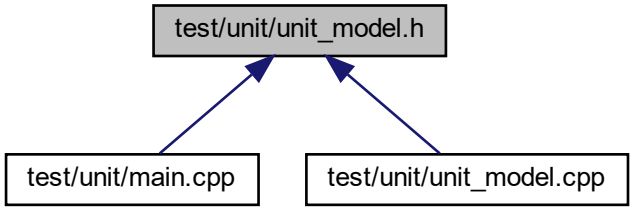
5.45 test/unit/unit_model.h File Reference

```
#include "../../src/lib/model_Imp.h"
#include "mem_usage.h"
#include <cstdio>
#include <assert.h>
```

Include dependency graph for unit_model.h:



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



Functions

- void unit_Model_constructor (void)

- void unit_Model_destructor (void)
- void unit_Model_run (void)
- void unit_Model_add_System (void)
- void unit_Model_add_Flow (void)
- void run_unit_test_Model (void)

5.45.1 Function Documentation

5.45.1.1 run_unit_test_Model()

```
void run_unit_test_Model (
            void  )
```

Definition at line 52 of file unit_model.cpp.

5.45.1.2 unit_Model_add_Flow()

```
void unit_Model_add_Flow (
            void  )
```

Definition at line 44 of file unit_model.cpp.

5.45.1.3 unit_Model_add_System()

```
void unit_Model_add_System (
            void  )
```

Definition at line 37 of file unit_model.cpp.

5.45.1.4 unit_Model_constructor()

```
void unit_Model_constructor (
            void  )
```

Definition at line 3 of file unit_model.cpp.

5.45.1.5 unit_Model_destructor()

```
void unit_Model_destructor (
            void  )
```

Definition at line 10 of file unit_model.cpp.

5.45.1.6 unit_Model_run()

```
void unit_Model_run (
            void  )
```

Definition at line 24 of file unit_model.cpp.

5.46 unit_model.h

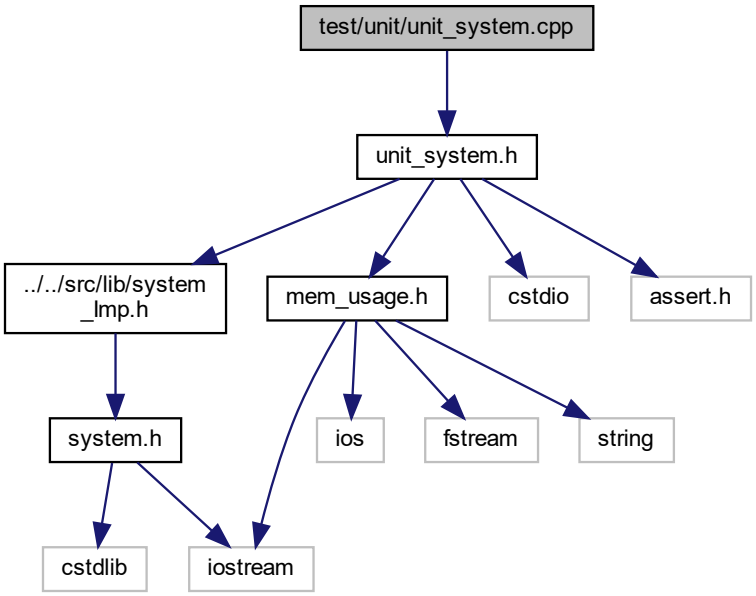
Go to the documentation of this file.

```
00001 #ifndef UNIT_MODEL_H
00002 #define UNIT_MODEL_H
00003
00004 #include "../../src/lib/model_Imp.h"
00005 #include "mem_usage.h"
00006
00007 #include <cstdio>
00008 #include <assert.h>
00009
00010 void unit_Model_constructor(void);
00011 void unit_Model_destructor(void);
00012 void unit_Model_run(void);
00013 void unit_Model_add_System(void);
00014 void unit_Model_add_Flow(void);
00015 void run_unit_test_Model(void);
00016 #endif
```

5.47 test/unit/unit_system.cpp File Reference

```
#include "unit_system.h"
```

Include dependency graph for unit_system.cpp:



Functions

- void unit_System_constructor (void)
- void unit_System_destructor (void)
- void unit_System_setName (void)
- void unit_System_setValue (void)
- void unit_System_getName (void)
- void unit_System_getValue (void)
- void unit_System_operator (void)
- void run_unit_test_System (void)

5.47.1 Function Documentation

5.47.1.1 run_unit_test_System()

```
void run_unit_test_System (
            void  )
```

Definition at line 54 of file unit_system.cpp.

5.47.1.2 unit_System_constructor()

```
void unit_System_constructor (
            void  )
```

Definition at line 3 of file unit_system.cpp.

5.47.1.3 unit_System_destructor()

```
void unit_System_destructor (
            void  )
```

Definition at line 12 of file unit_system.cpp.

5.47.1.4 unit_System_getName()

```
void unit_System_getName (
            void  )
```

Definition at line 38 of file unit_system.cpp.

5.47.1.5 unit_System_getValue()

```
void unit_System_getValue (
            void  )
```

Definition at line 43 of file unit_system.cpp.

5.47.1.6 unit_System_operator()

```
void unit_System_operator (
            void  )
```

Definition at line 48 of file unit_system.cpp.

5.47.1.7 unit_System_setName()

```
void unit_System_setName (
            void  )
```

Definition at line 26 of file unit_system.cpp.

5.47.1.8 unit_System_setValue()

```
void unit_System_setValue (
            void  )
```

Definition at line 32 of file unit_system.cpp.

5.48 unit_system.cpp

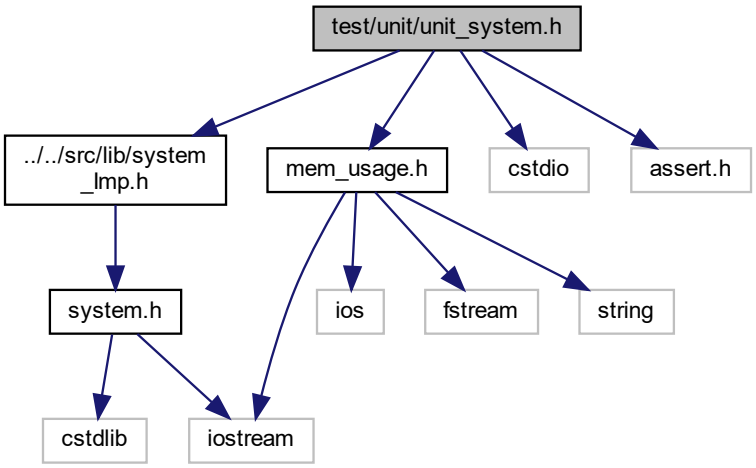
Go to the documentation of this file.

```
00001 #include "unit_system.h"
00002
00003 void unit_System_constructor(void){
00004     System* s1 = new System_Imp();
00005     s1->setValue(0);
00006     assert(s1->getValue() == 0);
00007     System* s2 = new System_Imp();
00008     s2->setValue(10);
00009     assert(s2->getValue() == 10 );
00010 }
00011
00012 void unit_System_destructor(void){
00013     double memoryBefore, memoryAfter, rss;
00014
00015     mem_usage(memoryBefore, rss);
00016
00017     System* s = new System_Imp();
00018     delete s;
00019
00020     mem_usage(memoryAfter, rss);
00021
00022     assert(memoryBefore == memoryAfter);
00023     cout « "Verification: destructor of System. OK!" « endl;
00024 }
00025
00026 void unit_System_setName(void){
00027     System* s1 = new System_Imp();
00028     s1->setName("test");
00029     assert(s1->getName() == "test");
00030 }
00031
00032 void unit_System_setValue(void){
00033     System* s1 = new System_Imp();
00034     s1->setValue(10);
00035     assert(s1->getValue() == 10);
00036 }
00037
00038 void unit_System_getName(void){
00039     System* s1 = new System_Imp("test", 10);
00040     assert(s1->getName() == "test" );
00041 }
00042
00043 void unit_System_getValue(void){
00044     System* s1 = new System_Imp("test", 10);
00045     assert(s1->getValue() == 10 );
00046 }
00047
00048 void unit_System_operator(void){
00049     System* s1 = new System_Imp("test", 10);
00050     System* s2 = s2;
00051     assert(s1->getValue() == s2->getValue());
00052 }
00053
00054 void run_unit_test_System(void){
00055     unit_System_constructor();
00056     unit_System_destructor();
00057     unit_System_setName();
00058     unit_System_setValue();
00059     unit_System_getName();
00060     unit_System_getValue();
00061     unit_System_operator();
00062 }
```

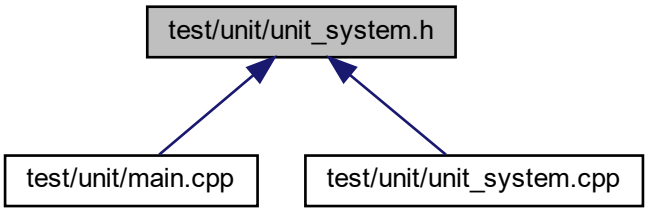
5.49 test/unit/unit_system.h File Reference

```
#include "../../src/lib/system_Imp.h"
#include "mem_usage.h"
#include <cstdio>
#include <assert.h>
```

Include dependency graph for unit_system.h:



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



Functions

- void unit_System_constructor (void)
- void unit_System_destructor (void)
- void unit_System_setName (void)
- void unit_System_setValue (void)
- void unit_System_getName (void)
- void unit_System_getValue (void)
- void unit_System_operator (void)
- void run_unit_test_System (void)

5.49.1 Function Documentation

5.49.1.1 run_unit_test_System()

```
void run_unit_test_System (
            void  )
```

Definition at line 54 of file unit_system.cpp.

5.49.1.2 unit_System_constructor()

```
void unit_System_constructor (
            void  )
```

Definition at line 3 of file unit_system.cpp.

5.49.1.3 unit_System_destructor()

```
void unit_System_destructor (
            void  )
```

Definition at line 12 of file unit_system.cpp.

5.49.1.4 unit_System_getName()

```
void unit_System_getName (
            void  )
```

Definition at line 38 of file unit_system.cpp.

5.49.1.5 unit_System_getValue()

```
void unit_System_getValue (
            void  )
```

Definition at line 43 of file unit_system.cpp.

5.49.1.6 unit_System_operator()

```
void unit_System_operator (
            void  )
```

Definition at line 48 of file unit_system.cpp.

5.49.1.7 unit_System_setName()

```
void unit_System_setName (
            void  )
```

Definition at line 26 of file unit_system.cpp.

5.49.1.8 unit_System_setValue()

```
void unit_System_setValue (
            void  )
```

Definition at line 32 of file unit_system.cpp.

5.50 unit_system.h

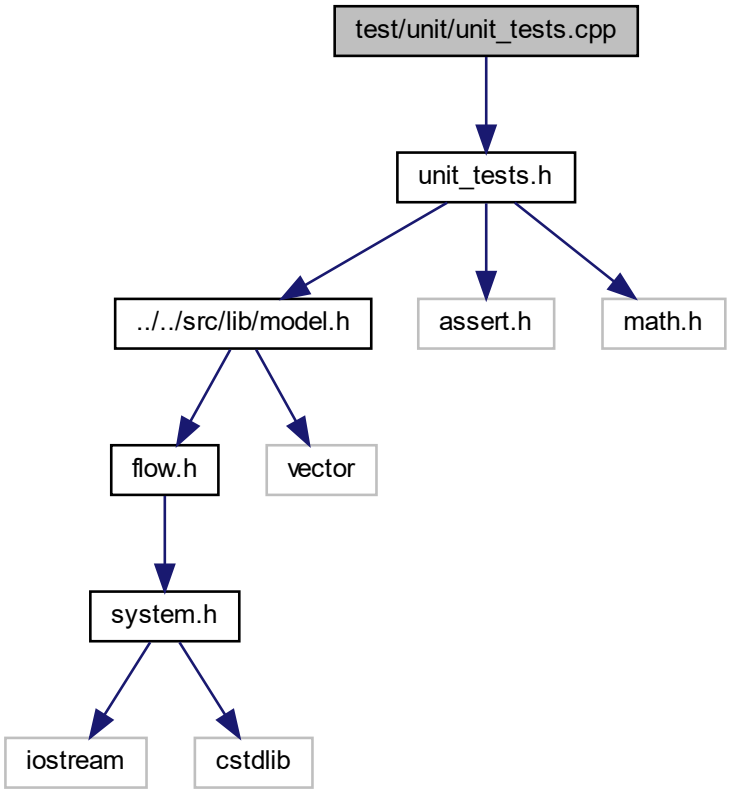
Go to the documentation of this file.

```
00001 #ifndef UNIT_SYSTEM_H
00002 #define UNIT_SYSTEM_H
00003
00004 #include "../../src/lib/system_Imp.h"
00005 #include "mem_usage.h"
00006
00007 #include <cstdio>
00008 #include <assert.h>
00009
00010
00011 void unit_System_constructor(void);
00012 void unit_System_destructor(void);
00013 void unit_System_setName(void);
00014 void unit_System_setValue(void);
00015 void unit_System_getName(void);
00016 void unit_System_getValue(void);
00017 void unit_System_operator(void);
00018 void run_unit_test_System(void);
00019
00020 #endif
```

5.51 test/unit/unit_tests.cpp File Reference

```
#include "unit_tests.h"
```

Include dependency graph for unit_tests.cpp:



5.52 unit_tests.cpp

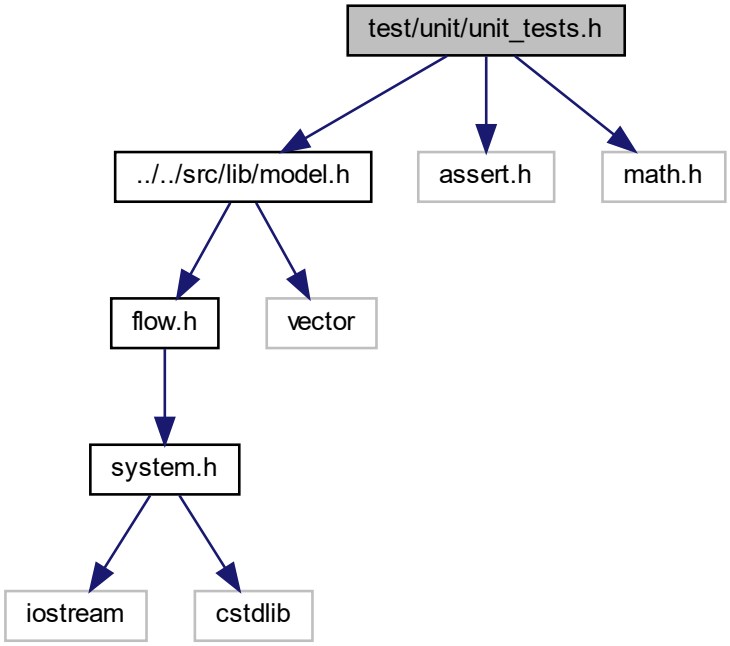
Go to the documentation of this file.

```
00001 #include "unit_tests.h"
00002
```

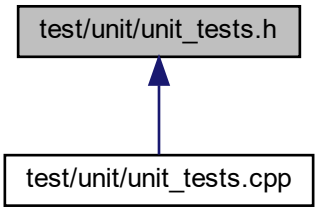
5.53 test/unit/unit_tests.h File Reference

```
#include "../../src/lib/model.h"
#include <assert.h>
```

`#include <math.h>`
Include dependency graph for unit_tests.h:



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



5.54 unit_tests.h

Go to the documentation of this file.

```
00001 #ifndef UNIT_TESTS_H
00002 #define UNIT_TESTS_H
00003 #include "../../src/lib/model.h"
00004
00005 #include <assert.h>
00006 #include <math.h>
00007
00008 #endif
```

Index