MissionControlStarBase

Generated by Doxygen 1.8.17

Chapter 1

Todo List

Member ConcreteBuilder::setPayload (string payloadDescription) override

see if should add

Member ConcreteBuilder::setPayload (vector< string > astronauts, vector< string > ranks) override

see if should add

Member ConcreteBuilder::setPayload (int numSatellites) override

see if should add

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

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

Chapter 3

Class Index

3.1 Class List

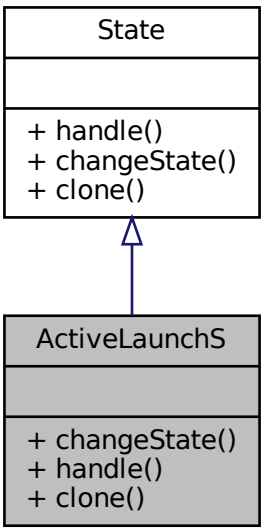
Here are the classes, structs, unions and interfaces with brief descriptions:

Chapter 4

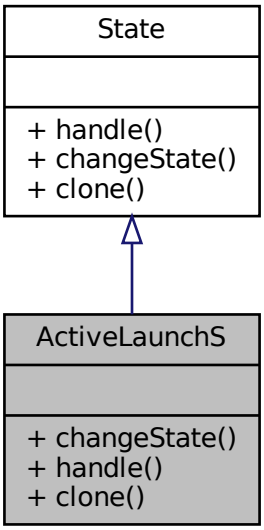
Class Documentation

4.1 ActiveLaunchS Class Reference

Inheritance diagram for ActiveLaunchS:



Collaboration diagram for ActiveLaunchS:



Public Member Functions

- void changeState (Rocket ∗aR)

  Change rocket state from Active Launch state.
- void handle (Rocket ∗aR) override

  Prints out a message explaining the.
- State ∗ clone () override

  returns a clone of the current state

4.1.1 Member Function Documentation

4.1.1.1 changeState()

```
void ActiveLaunchS::changeState (
            Rocket * aR )  [virtual]
```

Change rocket state from Active Launch state.

You can not change state further while in Active Launch state.

Parameters

aR	

refuel

Implements State.

4.1.1.2 handle()

```
void ActiveLaunchS::handle (
            Rocket * aR )  [override], [virtual]
```

Prints out a message explaining the.

Parameters

aR	The rocket being handled

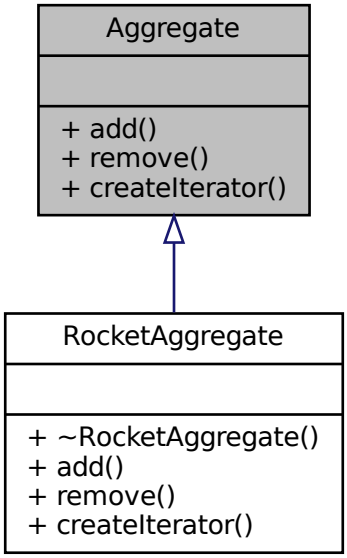
Implements State.

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

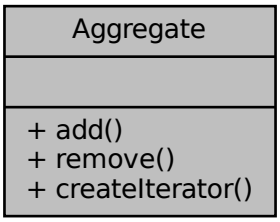
- State/ActiveLaunchS.h
- State/ActiveLaunchS.cpp

4.2 Aggregate Class Reference

Inheritance diagram for Aggregate:



Collaboration diagram for Aggregate:



Public Member Functions

- virtual void add (RocketMemento ∗aR)=0

  Add a RocketMemento to the vector.
- virtual void remove (RocketMemento ∗aR)=0

  Remove a RocketMemento from the vector.
- virtual Iterator ∗ createIterator ()=0

  Create an iterator.

4.2.1 Member Function Documentation

4.2.1.1 add()

```
virtual void Aggregate::add (
            RocketMemento * aR )  [pure virtual]
```

Add a RocketMemento to the vector.

Parameters

in	*aR*	pointer to a RocketMemento object

Implemented in RocketAggregate.

4.2.1.2 createIterator()

```
virtual Iterator* Aggregate::createIterator ( )  [pure virtual]
```

Create an iterator.

Returns

newly created iterator

Implemented in RocketAggregate.

4.2.1.3 remove()

```
virtual void Aggregate::remove (
            RocketMemento * aR )  [pure virtual]
```

Remove a RocketMemento from the vector.

Parameters

in	*aR*	pointer to a RocketMemento object

Implemented in RocketAggregate.

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

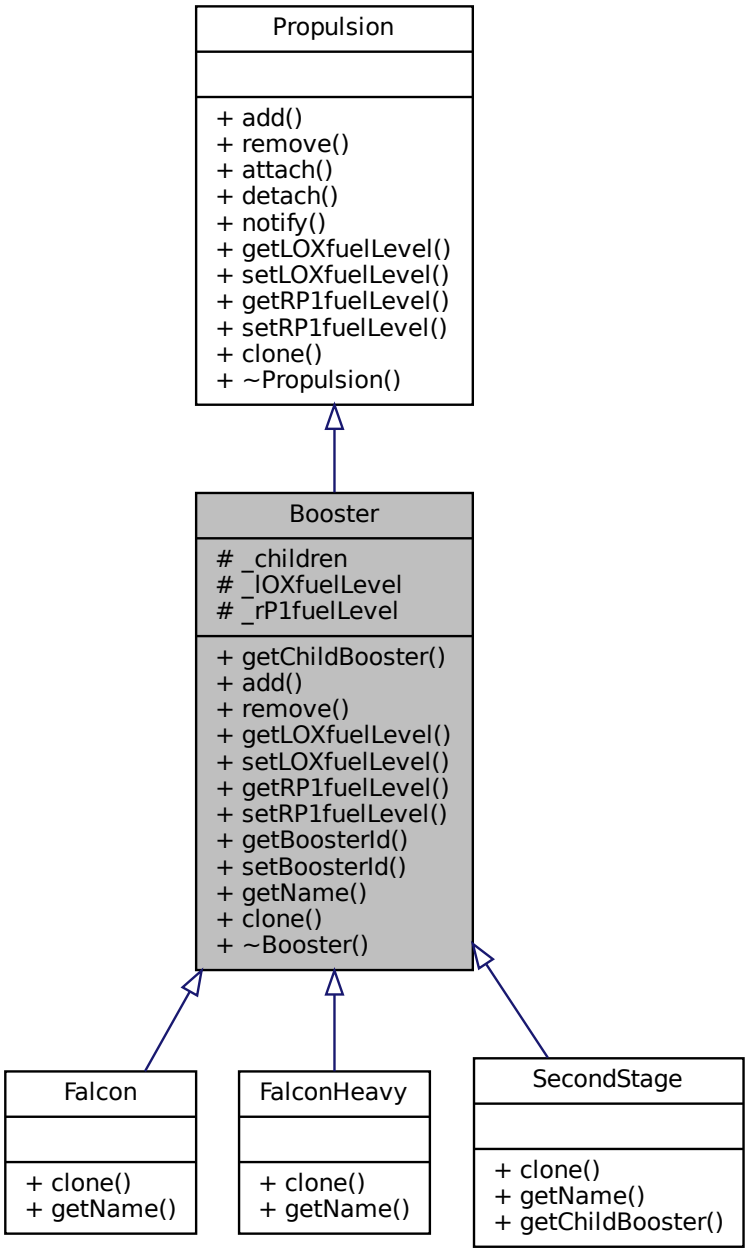
- Storage/Aggregate.h

4.3 Booster Class Reference

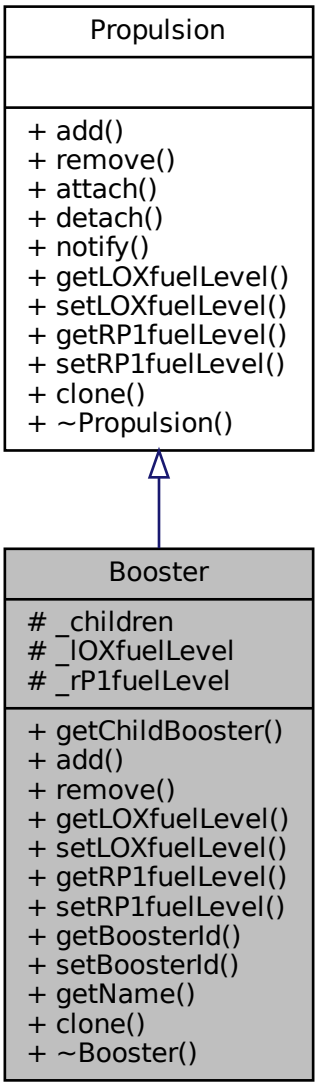
Booster class, child of Propulsion.

```
#include <Booster.h>
```

Inheritance diagram for Booster:



Collaboration diagram for Booster:



Public Member Functions

- virtual Booster * getChildBooster (int index)
- void add (Propulsion *aP) override

  adds a propulsion object to the composite structure
- void remove (Propulsion *aP) override

  removes a propulsion object
- int getLOXfuelLevel ()

  Getter for the LOXfuelLevel.
- void setLOXfuelLevel (int aLOXfuelLevel)

  Sets the LOX fuel level.

- int getRP1fuelLevel ()
  Getter for the RP1 fuel level.
- void setRP1fuelLevel (int aRP1fuelLevel)
  Setter for the RP1 fuel level.
- int getBoosterId ()
  Getter for the booster id.
- void setBoosterId (int id)
  Sets the booster id.
- virtual string getName ()
  Getter for the booster name.
- Propulsion * clone ()
  Returns a clone of the entire tree structure.
- ~Booster () override
  Destructor for `Booster` , deletes all branches.

Protected Attributes

- vector< Propulsion * > _children
  Children in the composite structure.
- int _lOXfuelLevel
  LOX Fuel level as a percentage.
- int _rP1fuelLevel
  RP1 Fuel level as a percentage.

4.3.1 Detailed Description

Booster class, child of Propulsion.

Author

Jonathan Enslin - u19103345

4.3.2 Constructor & Destructor Documentation

4.3.2.1 ~Booster()

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

Destructor for `Booster` , deletes all branches.

4.3.3 Member Function Documentation

4.3.3.1 add()

```
void Booster::add (
            Propulsion * aP )  [override], [virtual]
```

adds a propulsion object to the composite structure

Parameters

in	*aP*	the propulsion object to add to the composite

`aP` will be to the vector of propulsion objects

Implements Propulsion.

4.3.3.2 clone()

```
Propulsion * Booster::clone ( )  [virtual]
```

Returns a clone of the entire tree structure.

Returns

Propulsion*

Implements Propulsion.

Reimplemented in Falcon, FalconHeavy, and SecondStage.

4.3.3.3 getBoosterId()

```
int Booster::getBoosterId ( )
```

Getter for the booster id.

Returns

booster id

4.3.3.4 getChildBooster()

```
Booster * Booster::getChildBooster (
            int index )  [virtual]
```

See child classes for more implementation This method returns null

Parameters

index	The index of the child booster to obtain

Returns

Booster∗

Reimplemented in SecondStage.

4.3.3.5 getLOXfuelLevel()

```
int Booster::getLOXfuelLevel ( )  [virtual]
```

Getter for the LOXfuelLevel.

Returns

the LOX fuel level value

Implements Propulsion.

4.3.3.6 getName()

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

Getter for the booster name.

Returns

booster name as string

Reimplemented in Falcon, FalconHeavy, and SecondStage.

4.3.3.7 getRP1fuelLevel()

```
int Booster::getRP1fuelLevel ( )  [virtual]
```

Getter for the RP1 fuel level.

Returns

RP1 fuel level

Implements Propulsion.

4.3.3.8 remove()

```
void Booster::remove (
            Propulsion * aP )  [override], [virtual]
```

removes a propulsion object

Parameters

aP	Propulsion object to be removed

This will `aP` from the `_children` vector

Implements Propulsion.

4.3.3.9 setBoosterId()

```
void Booster::setBoosterId (
            int id )
```

Sets the booster id.

Parameters

in	*id*	The value the booster id should be set to

4.3.3.10 setLOXfuelLevel()

```
void Booster::setLOXfuelLevel (
            int aLOXfuelLevel )  [virtual]
```

Sets the LOX fuel level.

Parameters

in	*aLOXfuelLevel*	The value LOX fuel level should be set to

Implements Propulsion.

4.3.3.11 setRP1fuelLevel()

```
void Booster::setRP1fuelLevel (
            int aRP1fuelLevel )  [virtual]
```

Setter for the RP1 fuel level.

Implements Propulsion.

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

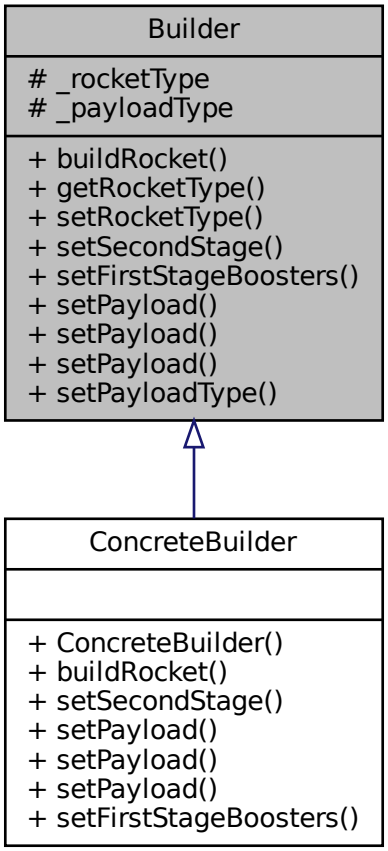
- Propulsion/Booster.h
- Propulsion/Booster.cpp

4.4 Builder Class Reference

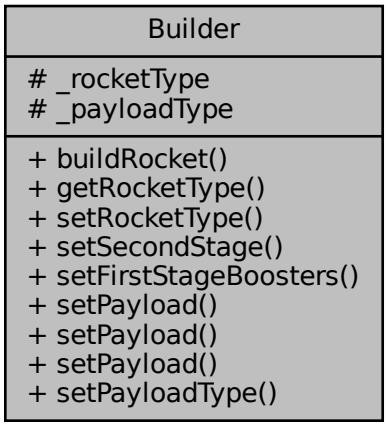
Interface for a basic rocket builder class.

```
#include <Builder.h>
```

Inheritance diagram for Builder:



Collaboration diagram for Builder:



Public Member Functions

- virtual Rocket * buildRocket ()=0

  This methods returns the rocket that was built.
- Rocket::RocketType getRocketType ()

  Getter for the rocket type.
- void setRocketType (Rocket::RocketType aRocketType)

  Setter for the rocket type.
- virtual void setSecondStage ()=0

  Sets the second stage of the rocket.
- virtual void setFirstStageBoosters ()=0

  Adder for the first stage of the rocket.
- virtual void setPayload (string payloadDescription)=0

  see child class for details
- virtual void setPayload (int numSatellites)=0

  see child class for details
- virtual void setPayload (vector< string > astronauts, vector< string > ranks)=0

  see child class for details
- virtual void setPayloadType (Payload::PayloadType aPayloadType)

  Setter for the payload type of the rocket being built.

Protected Attributes

- Rocket::RocketType _rocketType

  The type of the rocket.
- Payload::PayloadType _payloadType

  The type of the payload.

4.4.1 Detailed Description

Interface for a basic rocket builder class.

Note

- Abstract class

4.4.2 Member Function Documentation

4.4.2.1 buildRocket()

```
virtual Rocket* Builder::buildRocket ( )  [pure virtual]
```

This methods returns the rocket that was built.

Returns

A pointer to the rocket that was built

see the children class for implementation details

Implemented in ConcreteBuilder.

4.4.2.2 getRocketType()

```
Rocket::RocketType Builder::getRocketType ( )
```

Getter for the rocket type.

Returns

`_rocketType` - A that is equal to the rockets type

4.4.2.3 setFirstStageBoosters()

```
virtual void Builder::setFirstStageBoosters ( )  [pure virtual]
```

Adder for the first stage of the rocket.

See the the children classes for implementation details

Implemented in ConcreteBuilder.

4.4.2.4 setPayloadType()

```
void Builder::setPayloadType (
            Payload::PayloadType aPayloadType )  [virtual]
```

Setter for the payload type of the rocket being built.

Parameters

in	*aPayload*	- The payload type to be produced

4.4.2.5 setRocketType()

```
void Builder::setRocketType (
            Rocket::RocketType aRocketType )
```

Setter for the rocket type.

Parameters

aRocketType	The type of the rocket

4.4.2.6 setSecondStage()

```
virtual void Builder::setSecondStage ( )  [pure virtual]
```

Sets the second stage of the rocket.

See children classess for implementation details

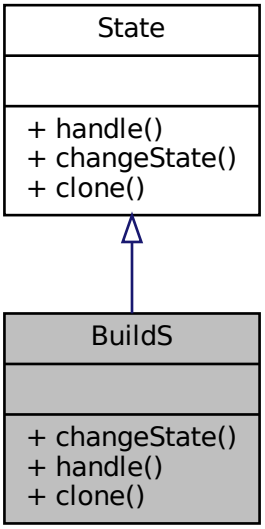
Implemented in ConcreteBuilder.

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

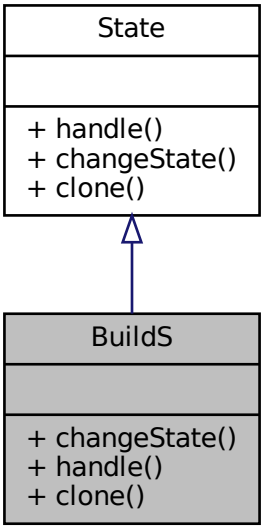
- Builder/Builder.h
- Builder/Builder.cpp

4.5 BuildS Class Reference

Inheritance diagram for BuildS:



Collaboration diagram for BuildS:



Public Member Functions

- void changeState (Rocket *aR) override

  Changes to the Fuel State.
- void handle (Rocket *aR) override

  Prints out a message explaining the.
- State * clone () override

  returns a clone of the current state

4.5.1 Member Function Documentation

4.5.1.1 changeState()

```
void BuildS::changeState (
            Rocket * aR )  [override], [virtual]
```

Changes to the Fuel State.

Changes the state of the rocket from Build state.

Parameters

aR	The rocket changing state

Changes the rocket state from being built to Fueling state. This just simply calls the rocket set state and passes the new Fuel state.

Parameters

aR	

Implements State.

4.5.1.2 handle()

```
void BuildS::handle (
            Rocket * aR )  [override], [virtual]
```

Prints out a message explaining the.

Parameters

aR	The rocket being handled

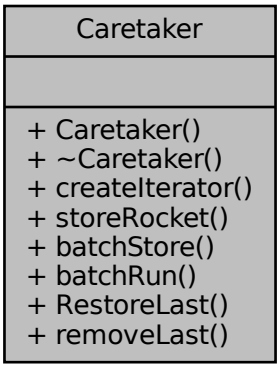
Implements State.

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

- State/BuildS.h
- State/BuildS.cpp

4.6 Caretaker Class Reference

Collaboration diagram for Caretaker:



Public Member Functions

- Iterator * createIterator ()

  Creates an iterator that is used to traverse the memento list.
- void storeRocket (RocketMemento *rockMem)

  Adds a rocket to the memento list.
- void batchStore (RocketAggregate *aBatch)

  Adds in a batch of rockets.
- void **batchRun** ()
- RocketMemento * RestoreLast ()

  Returns lastly stored rocket's state.
- void **removeLast** ()

4.6.1 Member Function Documentation

4.6.1.1 batchStore()

```
void Caretaker::batchStore (
            RocketAggregate * aBatch )
```

Adds in a batch of rockets.

Parameters

aBatch	a Batch t of rockets that will server as the new memento list

4.6.1.2 createIterator()

```
Iterator * Caretaker::createIterator ( )
```

Creates an iterator that is used to traverse the memento list.

Returns

return the iterator

4.6.1.3 RestoreLast()

```
RocketMemento * Caretaker::RestoreLast ( )
```

Returns lastly stored rocket's state.

Returns

returns lastly added RocketMemento

4.6.1.4 storeRocket()

```
void Caretaker::storeRocket (
            RocketMemento * rockMem )
```

Adds a rocket to the memento list.

Parameters

rockMem	a pointer to a RocketMemento to be added to memento list

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

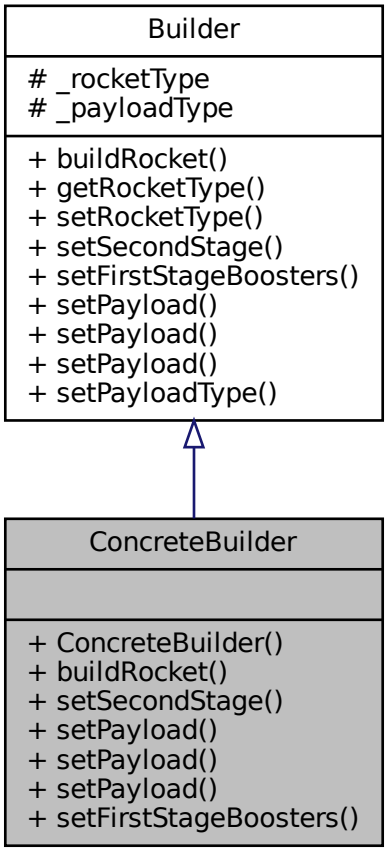
- Storage/Caretaker.h
- Storage/Caretaker.cpp

4.7 ConcreteBuilder Class Reference

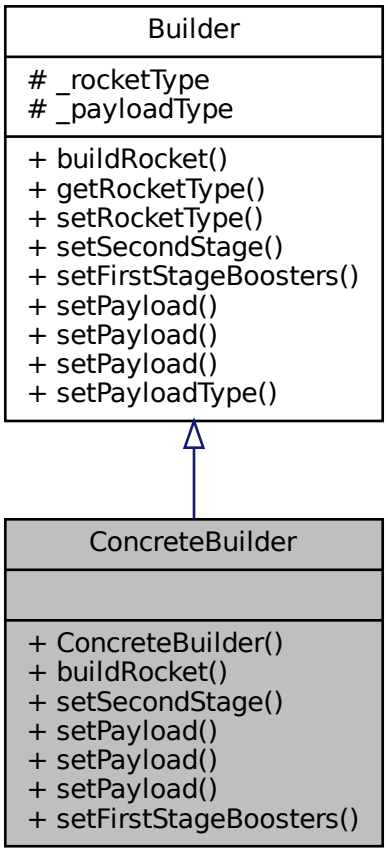
Implements Builder, constructs Rockets according to a structure.

```
#include <ConcreteBuilder.h>
```

Inheritance diagram for ConcreteBuilder:



Collaboration diagram for ConcreteBuilder:



Public Member Functions

- ConcreteBuilder (Rocket::RocketType aRocketType, Payload::PayloadType aPayloadType=Payload::CARGO)

  A parameterized constructor.
- Rocket * buildRocket () override

  Returns the built rocket.
- void setSecondStage () override

  Sets the second stage of the rocket.
- virtual void setPayload (string payloadDescription) override

  *Sets the payload when using **CARGO** payload type.*
- virtual void setPayload (int numSatellites) override

  *Set the Payload object when using **STARLINK** payload type.*
- virtual void setPayload (vector< string > astronauts, vector< string > ranks) override

  *Set the Payload object when using **CREW** payload type.*
- void setFirstStageBoosters () override

  Adds a first stage to the Rocket.

Additional Inherited Members

4.7.1 Detailed Description

Implements `Builder`, constructs Rockets according to a structure.

This class implements the interface of the `Builder` class, it constructs FalconHeavy and Falcon 9 rockets, the structure followed is as follows: SecondStage->(engine,[firstStages[Engines]])

Note

- Uses the `PayloadType enum from`

4.7.2 Constructor & Destructor Documentation

4.7.2.1 ConcreteBuilder()

```
ConcreteBuilder::ConcreteBuilder (
            Rocket::RocketType aRocketType,
            Payload::PayloadType aPayloadType = Payload::CARGO )
```

A parameterized constructor.

Parameters

aRocketType	The type of the rocket
aPayloadType	The type of the rockets payload

A default constructor that sets `secondStageSet` to `false` and `numFirstStage` to `0` It also creates a new rocket with no parts set

4.7.3 Member Function Documentation

4.7.3.1 buildRocket()

```
Rocket * ConcreteBuilder::buildRocket ( )  [override], [virtual]
```

Returns the built rocket.

Returns

A pointer to the rocket that has been built

This method returns a pointer to the rocket that has been constructed.

Implements Builder.

4.7.3.2 setFirstStageBoosters()

```
void ConcreteBuilder::setFirstStageBoosters ( )  [override], [virtual]
```

Adds a first stage to the Rocket.

This method will add a first stage Booster to the rocket. it will also automatically add engines to the rocket

Implements Builder.

4.7.3.3 setPayload() [1/3]

```
void ConcreteBuilder::setPayload (
            int numSatellites )  [override], [virtual]
```

Set the Payload object when using **STARLINK** payload type.

Parameters

in	*numSatellites*	The number of satellits to add to the chain of satellites (chain of responsibilty)

This function will create a starlink payload, for **STARLINK** payload type containing the number of satellites specified as a parameter

Note

- Only to be used when payload type is **STARLNK** . If it is not this type the function will throw a `string`

Todo see if should add

Implements Builder.

4.7.3.4 setPayload() [2/3]

```
void ConcreteBuilder::setPayload (
            string payloadDescription )  [override], [virtual]
```

Sets the payload when using **CARGO** payload type.

Parameters

in	*payloadDescription*	- The payload description to give to the payload

Sets the payload for payload type CARGO, will automatically create payload an initialise with parameters

Note

- This functions is only to be used for setting the payload when `payLoadType` is **CARGO** . If it is not this type, the function will throw a `string`

Todo see if should add

Implements Builder.

4.7.3.5 setPayload() [3/3]

```
void ConcreteBuilder::setPayload (
            vector< string > astronauts,
            vector< string > ranks )  [override], [virtual]
```

Set the Payload object when using **CREW** payload type.

Parameters

astronauts	A vector of astronauts to add to the payload
ranks	A vector of the respective ranks of the astronauts

This will create a payload containing the passed astronauts, the vector of ranks should ideally be the same length as the astronaut array, but differences in length will be ignored

Note

- Only to be used when payload type is **CREW** . If it is not this type the function will throw a `string`

Todo see if should add

Implements Builder.

4.7.3.6 setSecondStage()

```
void ConcreteBuilder::setSecondStage ( )  [override], [virtual]
```

Sets the second stage of the rocket.

This function will add a second stage to the rocket, it will also automatically add an engine to the rocket

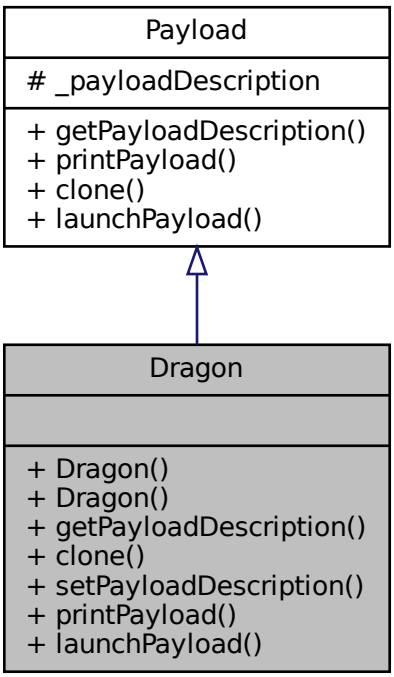
Implements Builder.

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

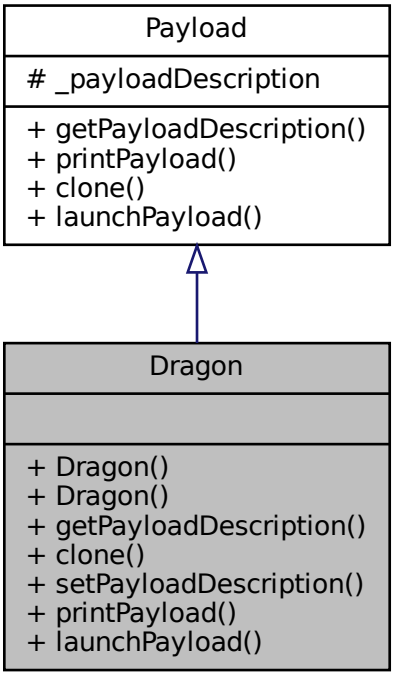
- Builder/ConcreteBuilder.h
- Builder/ConcreteBuilder.cpp

4.8 Dragon Class Reference

Inheritance diagram for Dragon:



Collaboration diagram for Dragon:



Public Member Functions

- Dragon (const Dragon &obj)

  Construct a new Dragon::Dragon object.
- Dragon ()

  Construct a new Dragon::Dragon object.
- string getPayloadDescription ()

  Gets the description of the Dragon payload as a string.
- Payload * clone ()

  clone function for Dragon
- void **setPayloadDescription** (string aDescription)
- void printPayload ()

  Displays the description of the Dragon payload to the user.
- void launchPayload ()

  Launches the payload.

Additional Inherited Members

4.8.1 Constructor & Destructor Documentation

4.8.1.1 Dragon() [1/2]

```
Dragon::Dragon (
            const Dragon & obj )
```

Construct a new Dragon::Dragon object.

Copy construct from an existing Dragon payload.

Parameters

obj	

4.8.1.2 Dragon() [2/2]

```
Dragon::Dragon ( )
```

Construct a new Dragon::Dragon object.

Create the Dragon payload.

4.8.2 Member Function Documentation

4.8.2.1 clone()

```
Payload * Dragon::clone ( )  [virtual]
```

clone function for Dragon

Returns

a pointer to payload

Implements Payload.

4.8.2.2 getPayloadDescription()

```
string Dragon::getPayloadDescription ( )  [virtual]
```

Gets the description of the Dragon payload as a string.

Every Dragon payload has a preset payload description. This function simply returns the description as a string.

Returns

string

Implements Payload.

4.8.2.3 launchPayload()

```
void Dragon::launchPayload ( )  [virtual]
```

Launches the payload.

Implements Payload.

4.8.2.4 printPayload()

```
void Dragon::printPayload ( )  [virtual]
```

Displays the description of the Dragon payload to the user.

Every Dragon payload has a preset payload description. This function simply takes the string return of getPayloadDescription() and gives it to the user.

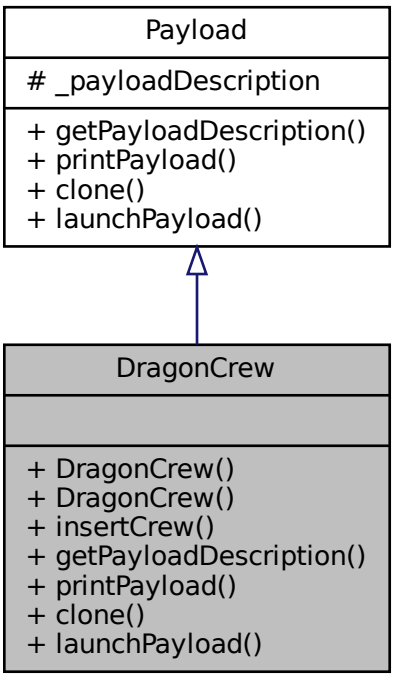
Implements Payload.

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

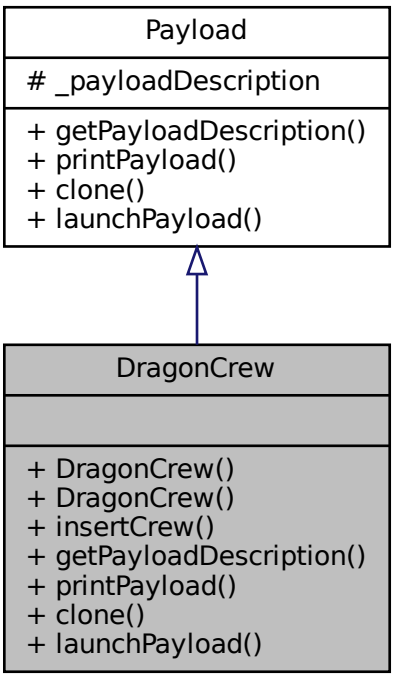
- Payload/Dragon.h
- Payload/Dragon.cpp

4.9 DragonCrew Class Reference

Inheritance diagram for DragonCrew:



Collaboration diagram for DragonCrew:



Public Member Functions

- DragonCrew (const DragonCrew &obj)

  Copy constructor for a new DragonCrew::DragonCrew object.
- DragonCrew ()

  Construct a new DragonCrew::DragonCrew object.
- void insertCrew (string Name, string Rank)

  Insert a crew member into the DragonCrew object.
- string getPayloadDescription ()

  Gets the description of the DragonCrew payload as a string.
- void printPayload ()

  Displays the DragonCrew payload to the user.
- Payload ∗ clone ()

  A clone for the dragon crew.
- void launchPayload ()

  Launches payload.

Additional Inherited Members

4.9.1 Constructor & Destructor Documentation

4.9.1.1 DragonCrew() [1/2]

```
DragonCrew::DragonCrew (
            const DragonCrew & obj )
```

Copy constructor for a new DragonCrew::DragonCrew object.

Every DragonCrew payload has a preset payload description. The crew member array is then copied over to the new DragonCrew. Then the description is copied aswell.

Parameters

obj	

4.9.1.2 DragonCrew() [2/2]

```
DragonCrew::DragonCrew ( )
```

Construct a new DragonCrew::DragonCrew object.

Every DragonCrew payload has a preset payload description. This function simply returns the description as a string. DragonCrew has a permanent 7 size for 7 crew members.

4.9.2 Member Function Documentation

4.9.2.1 clone()

```
Payload * DragonCrew::clone ( )  [virtual]
```

A clone for the dragon crew.

Returns

A Payload Pointer

Implements Payload.

4.9.2.2 getPayloadDescription()

```
string DragonCrew::getPayloadDescription ( )  [virtual]
```

Gets the description of the DragonCrew payload as a string.

Builds a description string from the given info. Builds the list of crew members. Then adds the description to the out string.

Returns

string

Implements Payload.

4.9.2.3 insertCrew()

```
void DragonCrew::insertCrew (
            string Name,
            string Rank )
```

Insert a crew member into the DragonCrew object.

When inserting into the array. "" represents empty places. We use this to add crew members in line with their Name and Rank. Displays a message if the insertion was successful or a other message if payload is full.

Parameters

Name	
Rank	

4.9.2.4 launchPayload()

```
void DragonCrew::launchPayload ( )  [virtual]
```

Launches payload.

See child classes for implementation

Implements Payload.

4.9.2.5 printPayload()

```
void DragonCrew::printPayload ( )  [virtual]
```

Displays the DragonCrew payload to the user.

Calls getPayloadDescription() to receive the out string. The string is built with tabs and newlines for output. The string is displayed to the user.

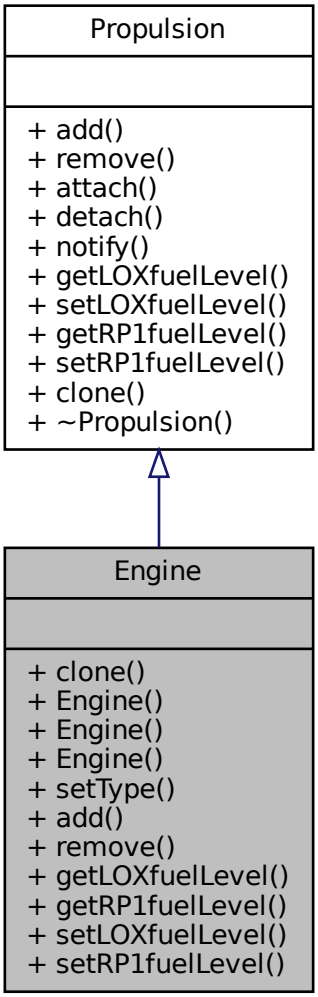
Implements Payload.

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

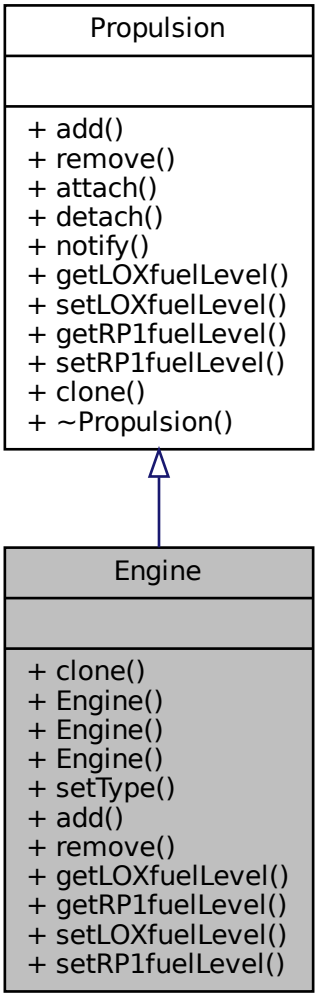
- Payload/DragonCrew.h
- Payload/DragonCrew.cpp

4.10 Engine Class Reference

Inheritance diagram for Engine:



Collaboration diagram for Engine:



Public Member Functions

- Propulsion ∗ clone ()

  Creates a clone of the engine.
- Engine ()
- Engine (string aType)

  Parameterized constructor.
- Engine (const Engine &eng)

  Copy constructor.
- void setType (string aType)

  Sets the type of the engine.
- virtual void add (Propulsion ∗aP)

  Does nothing.
- virtual void remove (Propulsion ∗aP)

Does nothing.

- int getLOXfuelLevel ()

  Does nothing.

- int getRP1fuelLevel ()

  Does nothing.

- void setLOXfuelLevel (int)

  Does nothing.

- void setRP1fuelLevel (int)

  Does nothing.

4.10.1 Constructor & Destructor Documentation

4.10.1.1 Engine() [1/2]

```
Engine::Engine ( )
```

Default constructor for Engine, sets type to an empty string

4.10.1.2 Engine() [2/2]

```
Engine::Engine (
            string aType )
```

Parameterized constructor.

Parameters

in	*aType*	the type of the engine

4.10.2 Member Function Documentation

4.10.2.1 clone()

```
Propulsion * Engine::clone ( )  [virtual]
```

Creates a clone of the engine.

Returns

Pointer to the clone of this engine

Implements Propulsion.

4.10.2.2 setType()

```
void Engine::setType (
            string aType )
```

Sets the type of the engine.

Parameters

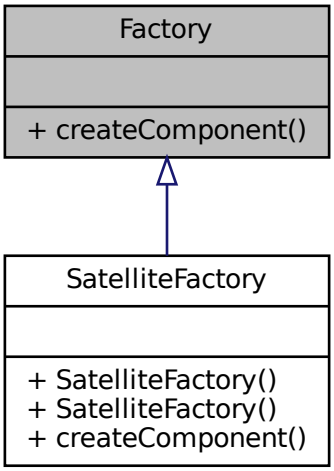
in	*aType*	The type of the rocket

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

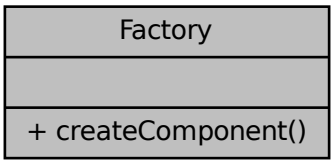
- Propulsion/Engine.h
- Propulsion/Engine.cpp

4.11 Factory Class Reference

Inheritance diagram for Factory:



Collaboration diagram for Factory:



Public Member Functions

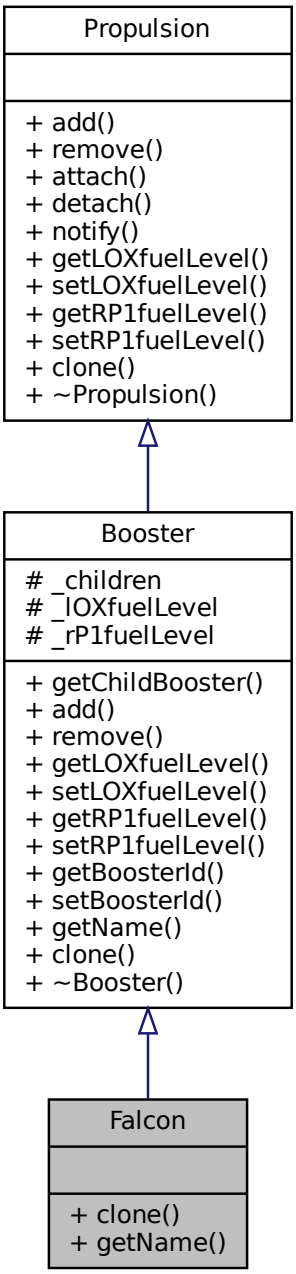
- virtual SatelliteLauncher * **createComponent** ()=0

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

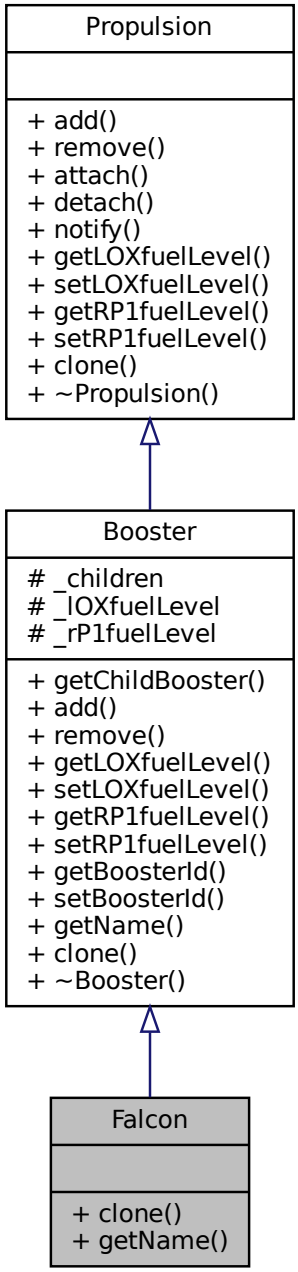
- Payload/Factory.h

4.12 Falcon Class Reference

Inheritance diagram for Falcon:



Collaboration diagram for Falcon:



Public Member Functions

- Propulsion * clone ()

  Returns a clone of the entire tree structure.

- string getName () override

  Getter for the booster name.

Additional Inherited Members

4.12.1 Member Function Documentation

4.12.1.1 clone()

```
Propulsion * Falcon::clone ( )  [virtual]
```

Returns a clone of the entire tree structure.

Returns

Propulsion*

Reimplemented from Booster.

4.12.1.2 getName()

```
string Falcon::getName ( )  [override], [virtual]
```

Getter for the booster name.

Returns

booster name as string

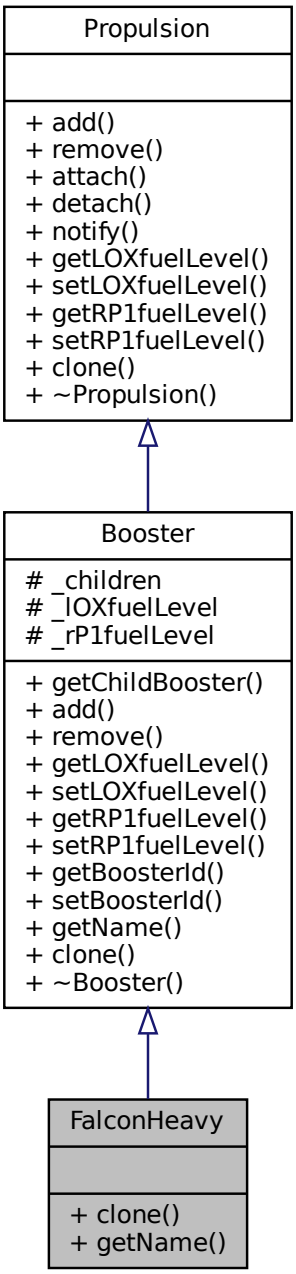
Reimplemented from Booster.

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

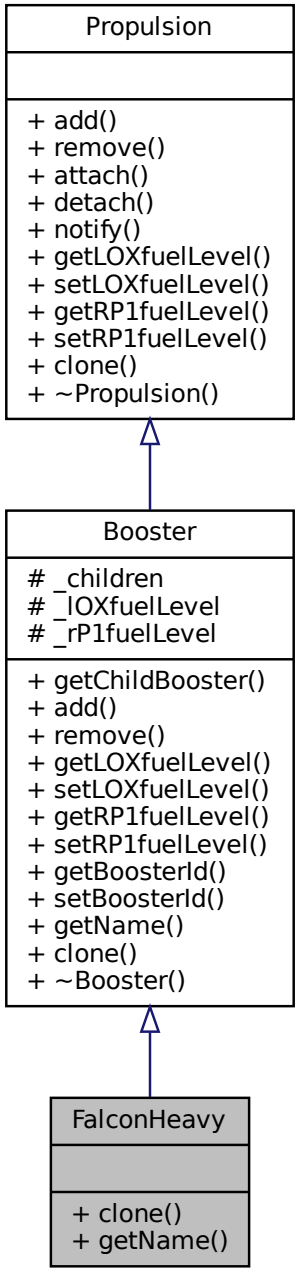
- Propulsion/Falcon.h
- Propulsion/Falcon.cpp

4.13 FalconHeavy Class Reference

Inheritance diagram for FalconHeavy:



Collaboration diagram for FalconHeavy:



Public Member Functions

- Propulsion * clone ()

  Returns a clone of the entire tree structure.

- string getName () override

  Getter for the booster name.

Additional Inherited Members

4.13.1 Member Function Documentation

4.13.1.1 clone()

```
Propulsion * FalconHeavy::clone ( )  [virtual]
```

Returns a clone of the entire tree structure.

Returns

Propulsion*

Reimplemented from Booster.

4.13.1.2 getName()

```
string FalconHeavy::getName ( )  [override], [virtual]
```

Getter for the booster name.

Returns

booster name as string

Reimplemented from Booster.

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

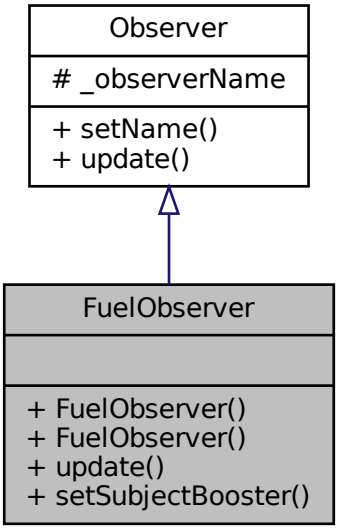
- Propulsion/FalconHeavy.h
- Propulsion/FalconHeavy.cpp

4.14 FuelObserver Class Reference

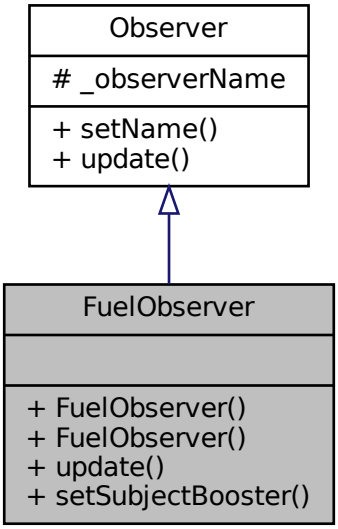
A class that observers fuel.

`#include <FuelObserver.h>`

Inheritance diagram for FuelObserver:



Collaboration diagram for FuelObserver:



Public Member Functions

- FuelObserver ()
- FuelObserver (string aName)

  Constructor that initialises name.
- void update ()

  Called by a subject object This will update the values of `_lOXfuelState` and `_rP1fuelState` and then call the.
- void setSubjectBooster (Booster ∗aBooster)

Additional Inherited Members

4.14.1 Detailed Description

A class that observers fuel.

Author

Jonathan Enslin - u19103345

4.14.2 Constructor & Destructor Documentation

4.14.2.1 FuelObserver() [1/2]

```
FuelObserver::FuelObserver ( )
```

Default constructor for FuelObserver, sets name to empty string

4.14.2.2 FuelObserver() [2/2]

```
FuelObserver::FuelObserver (
            string aName )
```

Constructor that initialises name.

Parameters

aName	The name of the Observer

4.14.3 Member Function Documentation

4.14.3.1 setSubjectBooster()

```
void FuelObserver::setSubjectBooster (
            Booster * aBooster )
```

Sets the booster that will be observed

Parameters

in	*aBooster*	Pointer to the booster being observed

Note

- method could be moved to parent class, in which case `_concreteBooster` could also be moved to parent Class

4.14.3.2 update()

```
void FuelObserver::update ( )  [virtual]
```

Called by a subject object This will update the values of `_lOXfuelState` and `_rP1fuelState` and then call the.

See also

FuelObserver::assessFuel() for the remaining functionality

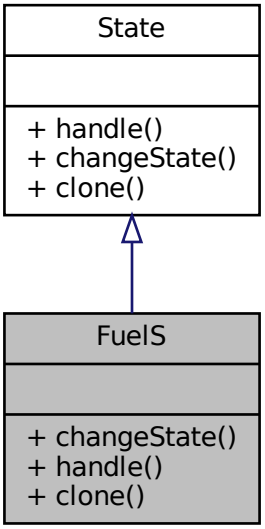
Implements Observer.

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

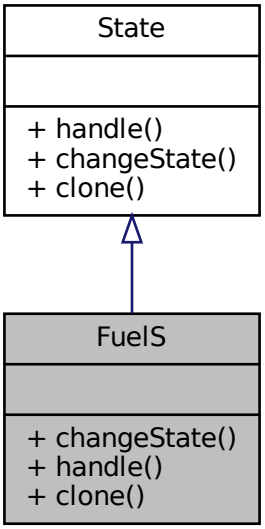
- Propulsion/FuelObserver.h
- Propulsion/FuelObserver.cpp

4.15 FuelS Class Reference

Inheritance diagram for FuelS:



Collaboration diagram for FuelS:



Public Member Functions

- void changeState (Rocket *aR)

  Change the rocket state from Fueling state.
- void handle (Rocket *aR) override

  Refuels the rocket.
- State * clone () override

  returns a clone of the current state

4.15.1 Member Function Documentation

4.15.1.1 changeState()

```
void FuelS::changeState (
            Rocket * aR )  [virtual]
```

Change the rocket state from Fueling state.

Changes the rocket state from being fueled to launching state. This just simply calls the rocket set state and passes the new Launch state.

Parameters

aR	

Implements State.

4.15.1.2 handle()

```
void FuelS::handle (
            Rocket * aR )  [override], [virtual]
```

Refuels the rocket.

Parameters

aR	The rocket being handled

This state refuels the rocket to 100%, it will also notify the observers of the rocket

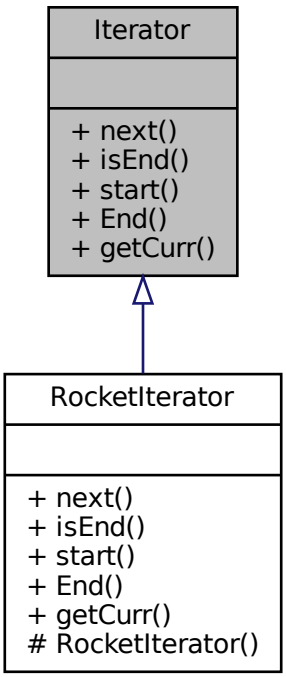
Implements State.

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

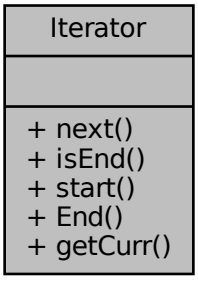
- State/FuelS.h
- State/FuelS.cpp

4.16 Iterator Class Reference

Inheritance diagram for Iterator:



Collaboration diagram for Iterator:



Public Member Functions

- virtual RocketMemento * next ()=0

Move on to next element.

- virtual bool isEnd ()=0

  Check if currently at last element.

- virtual RocketMemento * start ()=0

  Move to the first element.

- virtual RocketMemento * End ()=0

  Move to the last element.

- virtual RocketMemento * getCurr ()=0

  Returns the current element.

4.16.1 Member Function Documentation

4.16.1.1 End()

```
virtual RocketMemento* Iterator::End ( )  [pure virtual]
```

Move to the last element.

Returns

The last element

Implemented in RocketIterator.

4.16.1.2 getCurr()

```
virtual RocketMemento* Iterator::getCurr ( )  [pure virtual]
```

Returns the current element.

Returns

element that is currently being pointed to

Implemented in RocketIterator.

4.16.1.3 isEnd()

```
virtual bool Iterator::isEnd ( )  [pure virtual]
```

Check if currently at last element.

Returns

return true if at last element, else return false

Implemented in RocketIterator.

4.16.1.4 next()

```
virtual RocketMemento* Iterator::next ( )  [pure virtual]
```

Move on to next element.

Returns

element that is being pointed to after move

Implemented in RocketIterator.

4.16.1.5 start()

```
virtual RocketMemento* Iterator::start ( )  [pure virtual]
```

Move to the first element.

Returns

The first element

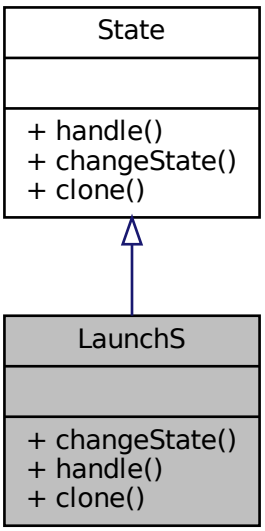
Implemented in RocketIterator.

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

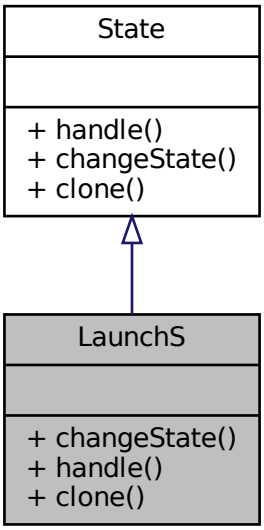
- Storage/Iterator.h

4.17 LaunchS Class Reference

Inheritance diagram for LaunchS:



Collaboration diagram for LaunchS:



Public Member Functions

- void changeState (Rocket ∗aR)

  Change rocket state from Launch prep state.
- void handle (Rocket ∗aR) override

  Launches the rocket.
- State ∗ clone () override

  returns a clone of the current state

4.17.1 Member Function Documentation

4.17.1.1 changeState()

```
void LaunchS::changeState (
            Rocket * aR )  [virtual]
```

Change rocket state from Launch prep state.

Changes the rocket state from being ready for launch to Active Launch state. This just simply calls the rocket set state and passes the new Active Launch state.

Parameters

aR	

Implements State.

4.17.1.2 handle()

```
void LaunchS::handle (
            Rocket * aR )  [override], [virtual]
```

Launches the rocket.

Parameters

aR	The rocket being handled

Launches the rocket by modifying the fuel values, also notifies all observers

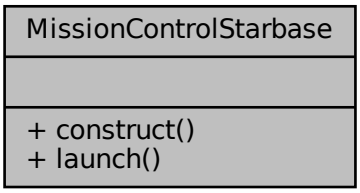
Implements State.

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

- State/LaunchS.h
- State/LaunchS.cpp

4.18 MissionControlStarbase Class Reference

Collaboration diagram for MissionControlStarbase:



Public Member Functions

- Rocket * construct (Builder *aBuilder)

  Construct a rocket.
- void launch (Rocket *R)

  Launch Rocket.

4.18.1 Member Function Documentation

4.18.1.1 construct()

```
Rocket * MissionControlStarbase::construct (
            Builder * aBuilder )
```

Construct a rocket.

Use a passed builder to build and put a rocket together for use. Also allow user to change builder parameters.

Parameters

aBuilder	

Returns

Rocket*

4.18.1.2 launch()

```
void MissionControlStarbase::launch (
            Rocket * R )
```

Launch Rocket.

Use rocket's states to go through it preparations and then launch.

Parameters

R	

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

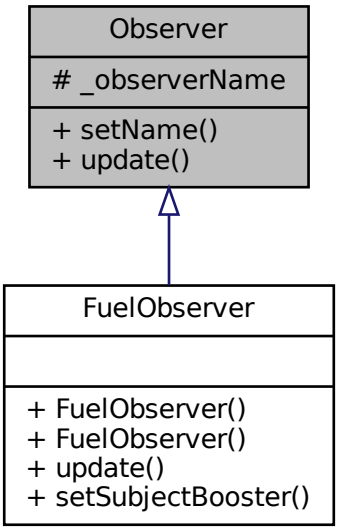
- MissionControlStarbase.h
- MissionControlStarbase.cpp

4.19 Observer Class Reference

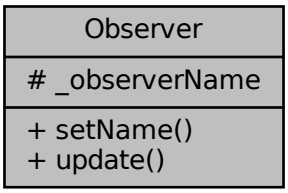
A Booster observer class.

```
#include <Observer.h>
```

Inheritance diagram for Observer:



Collaboration diagram for Observer:



Public Member Functions

- void setName (string name)

  Sets the name of the observer.
- virtual void **update** ()=0

Protected Attributes

- string _observerName

  Name of the observer.

4.19.1 Detailed Description

A Booster observer class.

Author

Jonathan Enslin - u19103345

4.19.2 Member Function Documentation

4.19.2.1 setName()

```
void Observer::setName (
            string name )
```

Sets the name of the observer.

Parameters

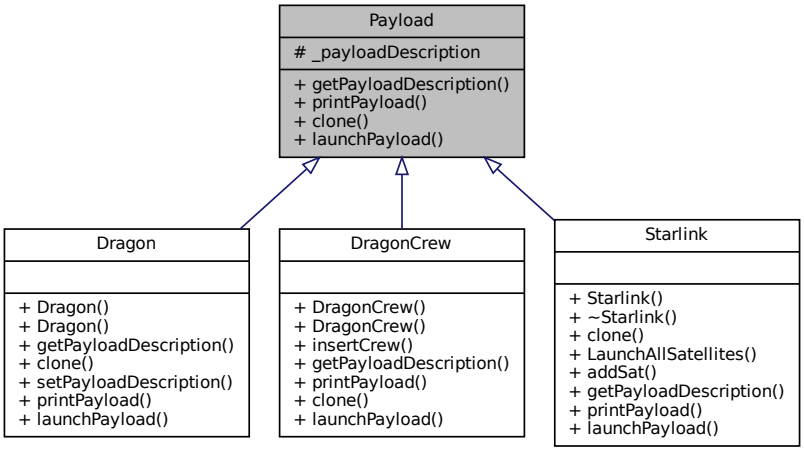
in	*name*	Name to be assigned

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

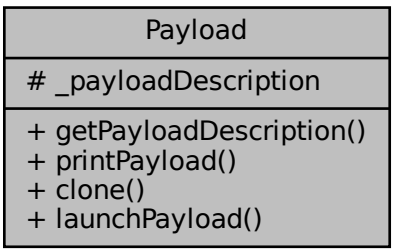
- Propulsion/Observer.h
- Propulsion/Observer.cpp

4.20 Payload Class Reference

Inheritance diagram for Payload:



Collaboration diagram for Payload:



Public Types

- enum PayloadType { CREW, CARGO, STARLINK }

  Specifies different payload types.

Public Member Functions

- virtual string **getPayloadDescription** ()=0
- virtual void **printPayload** ()=0
- virtual Payload ∗ **clone** ()=0
- virtual void launchPayload ()=0

  Launches payload.

Protected Attributes

- string **_payloadDescription**

4.20.1 Member Enumeration Documentation

4.20.1.1 PayloadType

`enum Payload::PayloadType`

Specifies different payload types.

- `CREW` specifies that the payload carries crew
  - `CARGO` specifies that the payload carries cargo
  - `STARLINK` specifies that the payload carries starlink satellites

Enumerator

CREW	Crew type.
CARGO	Cargo type.
STARLINK	Starlink.

4.20.2 Member Function Documentation

4.20.2.1 launchPayload()

```
virtual void Payload::launchPayload ( )  [pure virtual]
```

Launches payload.

See child classes for implementation

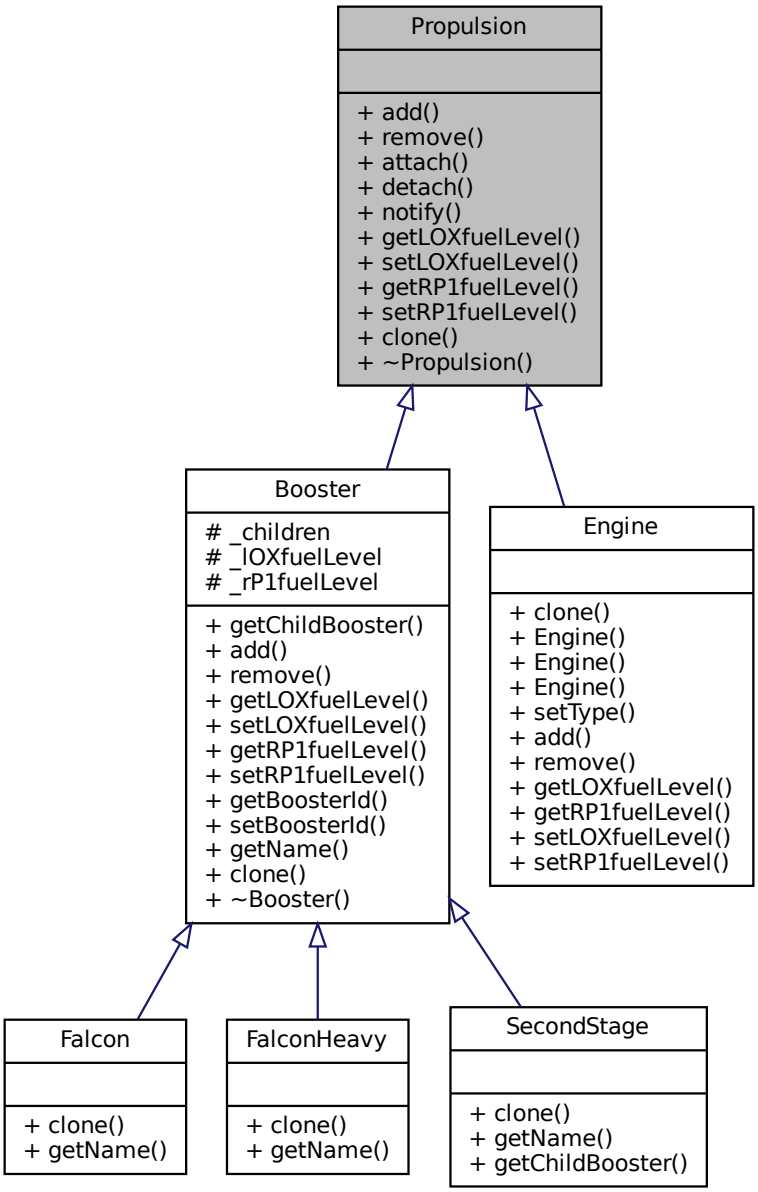
Implemented in Starlink, Dragon, and DragonCrew.

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

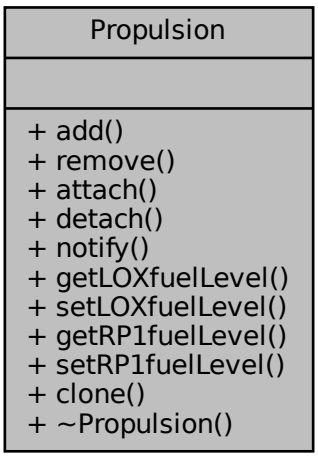
- Payload/Payload.h
- Payload/Payload.cpp

4.21 Propulsion Class Reference

Inheritance diagram for Propulsion:



Collaboration diagram for Propulsion:



Public Member Functions

- virtual void add (Propulsion *aP)=0
- virtual void remove (Propulsion *aP)=0
- void attach (Observer *aO)
- void detach (Observer *aO)

  Removes an observer from the observer list.
- void notify ()
- virtual int getLOXfuelLevel ()=0

  Getter for the LOXfuelLevel.
- virtual void setLOXfuelLevel (int aLOXfuelLevel)=0

  Sets the LOX fuel level.
- virtual int getRP1fuelLevel ()=0

  Getter for the RP1 fuel level.
- virtual void setRP1fuelLevel (int aRP1fuelLevel)=0

  Setter for the RP1 fuel level.
- virtual Propulsion * clone ()=0

  Clone function.
- virtual ~Propulsion ()

  default virtual destructor

4.21.1 Member Function Documentation

4.21.1.1 add()

```
void Propulsion::add (
            Propulsion * aP )  [pure virtual]
```

Parameters

in	*aP*	- The propulsion object to be added

see child classes for implementation details

Implemented in Booster, and Engine.

4.21.1.2 attach()

```
void Propulsion::attach (
            Observer * aO )
```

Adds an observer to the observer list

Parameters

in	*aO*	A pointer to the observer to be added to the observer list

Note

- Observer also has to register with respective object to function correctly

4.21.1.3 clone()

```
virtual Propulsion* Propulsion::clone ( )  [pure virtual]
```

Clone function.

Returns

Propultion pointer

Implemented in Booster, Engine, Falcon, FalconHeavy, and SecondStage.

4.21.1.4 detach()

```
void Propulsion::detach (
            Observer * aO )
```

Removes an observer from the observer list.

Parameters

aO	The observer to be removed from the observer list

4.21.1.5 getLOXfuelLevel()

```
virtual int Propulsion::getLOXfuelLevel ( )  [pure virtual]
```

Getter for the LOXfuelLevel.

Returns

the LOX fuel level value

Implemented in Booster, and Engine.

4.21.1.6 getRP1fuelLevel()

```
virtual int Propulsion::getRP1fuelLevel ( )  [pure virtual]
```

Getter for the RP1 fuel level.

Returns

RP1 fuel level

Implemented in Booster, and Engine.

4.21.1.7 notify()

```
void Propulsion::notify ( )
```

Notifies all observers in the observer list

4.21.1.8 remove()

```
void Propulsion::remove (
            Propulsion * aP )  [pure virtual]
```

Parameters

in	*aP*	- The propulsion object to be removed

see child classes for implementation details

Implemented in Booster, and Engine.

4.21.1.9 setLOXfuelLevel()

```
virtual void Propulsion::setLOXfuelLevel (
            int aLOXfuelLevel )  [pure virtual]
```

Sets the LOX fuel level.

Parameters

in	*aLOXfuelLevel*	The value LOX fuel level should be set to

Implemented in Engine, and Booster.

4.21.1.10 setRP1fuelLevel()

```
virtual void Propulsion::setRP1fuelLevel (
            int aRP1fuelLevel )  [pure virtual]
```

Setter for the RP1 fuel level.

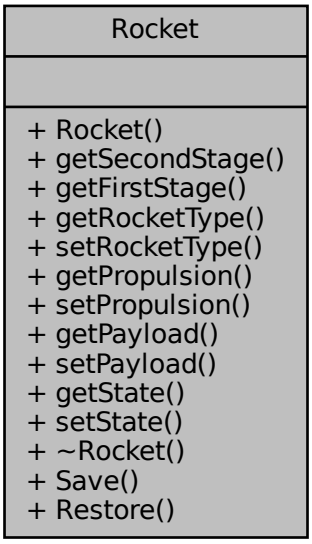
Implemented in Engine, and Booster.

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

- Propulsion/Propulsion.h
- Propulsion/Propulsion.cpp

4.22 Rocket Class Reference

Collaboration diagram for Rocket:



Public Types

- enum RocketType { FALCON9, FALCONHEAVY }

  Specifies the type of.

Public Member Functions

- Booster * getSecondStage ()

  Get the Second Stage object.
- Booster * getFirstStage (int index)

  Get the First Stage object at a certain index.
- RocketType **getRocketType** ()
- void setRocketType (RocketType type)

  Sets the rocket type.
- Propulsion * getPropulsion ()

  Returns the propulsion object of the rocket.
- void setPropulsion (Propulsion *aPropulsion)

  sets the propulsion object of the rocket
- Payload * getPayload ()

  gets the rocket's payload
- void setPayload (Payload *aPayload)

  sets the rocket's payload
- State * getState ()

gets the state object of the rocket

- void setState (State *aState)

  sets the state object of the rocket
- RocketMemento * **Save** ()
- void **Restore** (RocketMemento *aRockMem)

4.22.1 Member Enumeration Documentation

4.22.1.1 RocketType

```
enum Rocket::RocketType
```

Specifies the type of.

FALCON9 Rockets will have 1 first stage boosters FALCONHEAVY Rockets will have 3 first stage boosters

Enumerator

FALCON9	Specifies that the rocket is a Falcon-9 Rocket.
FALCONHEAVY	Specifies that the rocket is a Falcon Heavy Rocket.

4.22.2 Member Function Documentation

4.22.2.1 getFirstStage()

```
Booster * Rocket::getFirstStage (
            int index )
```

Get the First Stage object at a certain index.

Returns the index'th first stage booster

Parameters

index	

Returns

Booster*

4.22.2.2 getSecondStage()

```
Booster * Rocket::getSecondStage ( )
```

Get the Second Stage object.

Returns a pointer to the second stage of the rocket

Returns

SecondStage*

4.22.2.3 setRocketType()

```
void Rocket::setRocketType (
            RocketType type )
```

Sets the rocket type.

Note

- This should not be changed after rocket has been created

Parameters

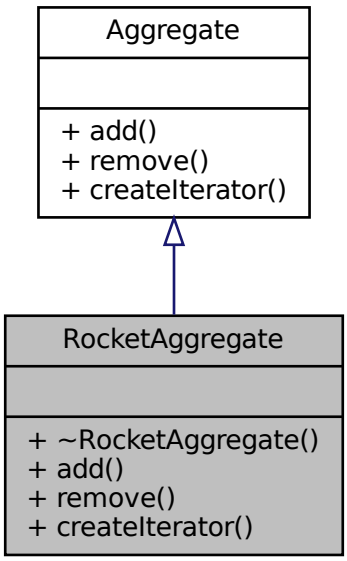
in	*type*	The type of the rocket

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

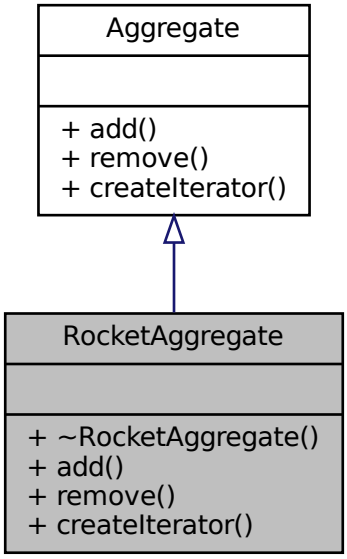
- Rocket.h
- Rocket.cpp

4.23 RocketAggregate Class Reference

Inheritance diagram for RocketAggregate:



Collaboration diagram for RocketAggregate:



Public Member Functions

- ~RocketAggregate ()

  Destruct the RocketAggregate.
- void add (RocketMemento *aR)

  Add a RocketMemento to the vector.
- void remove (RocketMemento *aR)

  Remove a RocketMemento from the vector.
- Iterator * createIterator ()

  Create an iterator.

4.23.1 Member Function Documentation

4.23.1.1 add()

```
void RocketAggregate::add (
            RocketMemento * aR )  [virtual]
```

Add a RocketMemento to the vector.

Parameters

in	*aR*	pointer to a RocketMemento object

Implements Aggregate.

4.23.1.2 createIterator()

```
Iterator * RocketAggregate::createIterator ( )  [virtual]
```

Create an iterator.

Returns

newly created iterator

Implements Aggregate.

4.23.1.3 remove()

```
void RocketAggregate::remove (
            RocketMemento * aR )  [virtual]
```

Remove a RocketMemento from the vector.

Parameters

in	*aR*	pointer to a RocketMemento object

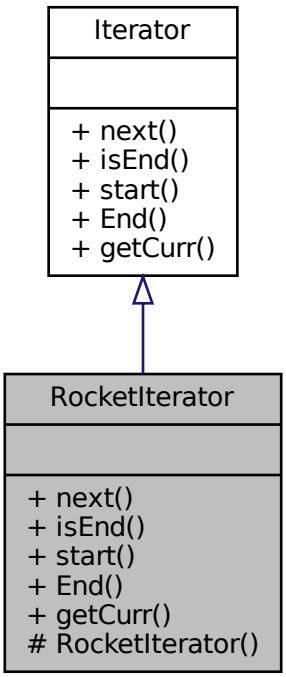
Implements Aggregate.

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

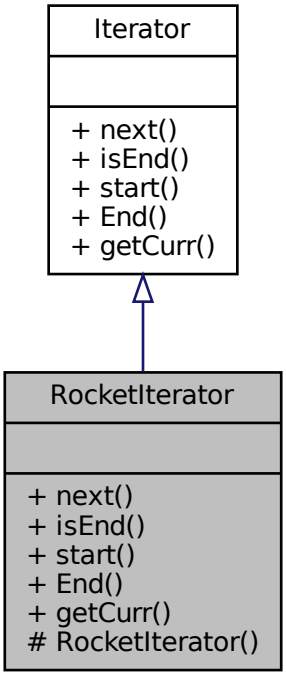
- Storage/RocketAggregate.h
- Storage/RocketAggregate.cpp

4.24 RocketIterator Class Reference

Inheritance diagram for RocketIterator:



Collaboration diagram for RocketIterator:



Public Member Functions

- RocketMemento * next ()

  Move on to next element.
- bool isEnd ()

  Check if currently at last element.
- RocketMemento * start ()

  Move to the first element.
- RocketMemento * End ()

  Move to the last element.
- RocketMemento * getCurr ()

  Returns the current element.

Protected Member Functions

- RocketIterator (vector< RocketMemento * > *c)

  A parameterized constructor.

Friends

- class **RocketAggregate**

4.24.1 Constructor & Destructor Documentation

4.24.1.1 RocketIterator()

```
RocketIterator::RocketIterator (
            vector< RocketMemento * > * c )  [protected]
```

A parameterized constructor.

Parameters

c	a pointer to a vector containing pointers to RocketMemento objects

4.24.2 Member Function Documentation

4.24.2.1 End()

```
RocketMemento * RocketIterator::End ( )  [virtual]
```

Move to the last element.

Returns

The last element

Implements Iterator.

4.24.2.2 getCurr()

```
RocketMemento * RocketIterator::getCurr ( )  [virtual]
```

Returns the current element.

Returns

element that is currently being pointed to

Implements Iterator.

4.24.2.3 isEnd()

```
bool RocketIterator::isEnd ( )  [virtual]
```

Check if currently at last element.

Returns

return true if at last element, else return false

Implements Iterator.

4.24.2.4 next()

```
RocketMemento * RocketIterator::next ( )  [virtual]
```

Move on to next element.

Returns

element that is being pointed to after move

Implements Iterator.

4.24.2.5 start()

```
RocketMemento * RocketIterator::start ( )  [virtual]
```

Move to the first element.

Returns

The first element

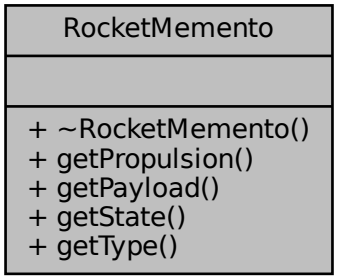
Implements Iterator.

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

- Storage/RocketIterator.h
- Storage/RocketIterator.cpp

4.25 RocketMemento Class Reference

Collaboration diagram for RocketMemento:



Public Member Functions

- Propulsion * **getPropulsion** ()
- Payload * **getPayload** ()
- State * **getState** ()
- Rocket::RocketType **getType** ()

Friends

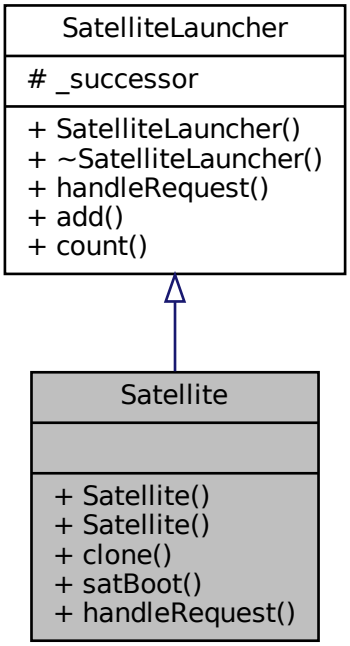
- class **Rocket**

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

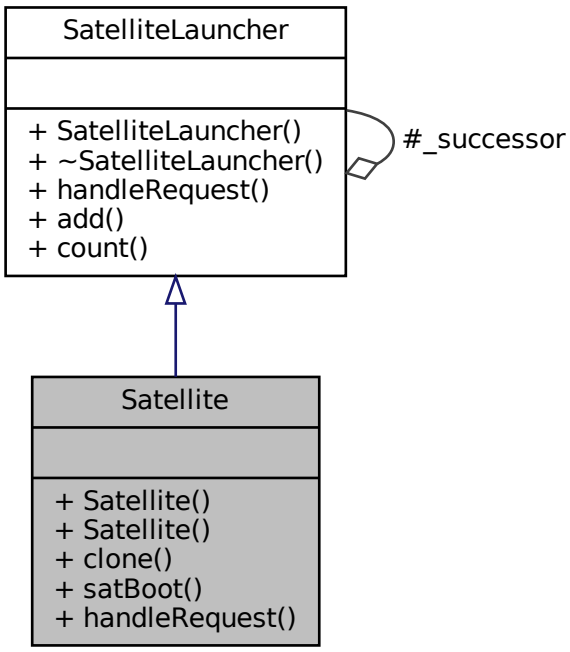
- Storage/RocketMemento.h
- Storage/RocketMemento.cpp

4.26 Satellite Class Reference

Inheritance diagram for Satellite:



Collaboration diagram for Satellite:



Public Member Functions

- Satellite ()

  Construct a new Satellite::Satellite object.
- Satellite (const Satellite &obj)

  Construct a new Satellite::Satellite object.
- Satellite * clone ()

  Clones satellite and returns new one.
- void **satBoot** (int v)
- void handleRequest (int number=0)

  SatelliteLauncher goes down the chain of Satellites. Once it reaches the end they detach and delete.

Additional Inherited Members

4.26.1 Constructor & Destructor Documentation

4.26.1.1 Satellite() [1/2]

```
Satellite::Satellite ( )
```

Construct a new Satellite::Satellite object.

Creates normal Satellite.

4.26.1.2 Satellite() [2/2]

```
Satellite::Satellite (
            const Satellite & obj )
```

Construct a new Satellite::Satellite object.

Copy constructor to make copied Satellites from existing Satellites.

Parameters

obj	

4.26.2 Member Function Documentation

4.26.2.1 clone()

```
Satellite * Satellite::clone ( )
```

Clones satellite and returns new one.

Creates a cloned Satellite when a Satellite calls to clone itself.

Returns

Satellite∗

4.26.2.2 handleRequest()

```
void Satellite::handleRequest (
            int number = 0 )  [virtual]
```

SatelliteLauncher goes down the chain of Satellites. Once it reaches the end they detach and delete.

Once handleRequest() is called. Starting from the head the list of Satellites is traversed until the very end. At the end through recursion the ends get deleted

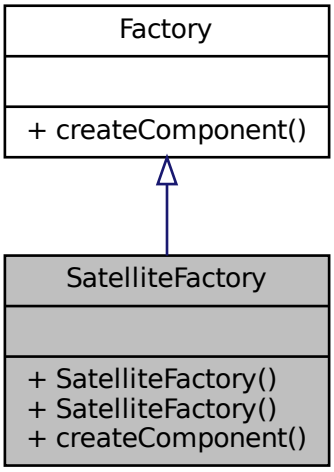
Implements SatelliteLauncher.

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

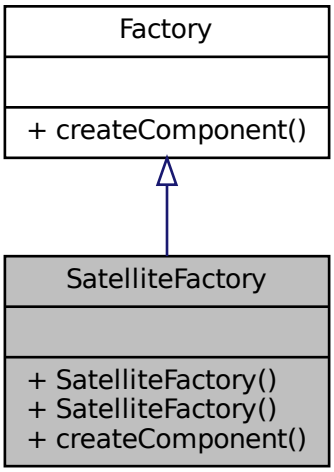
- Payload/Satellite.h
- Payload/Satellite.cpp

4.27 SatelliteFactory Class Reference

Inheritance diagram for SatelliteFactory:



Collaboration diagram for SatelliteFactory:



Public Member Functions

- SatelliteFactory ()

Construct a new SatelliteFactory::SatelliteFactory object.

- SatelliteFactory (const SatelliteFactory &obj)

  Construct a new SatelliteFactory::SatelliteFactory object.

- SatelliteLauncher * createComponent ()

  Factory makes new satellite for user.

4.27.1 Constructor & Destructor Documentation

4.27.1.1 SatelliteFactory() [1/2]

```
SatelliteFactory::SatelliteFactory ( )
```

Construct a new SatelliteFactory::SatelliteFactory object.

Creates normal SatelliteFactory object used to construct other Satellites.

4.27.1.2 SatelliteFactory() [2/2]

```
SatelliteFactory::SatelliteFactory (
            const SatelliteFactory & obj )
```

Construct a new SatelliteFactory::SatelliteFactory object.

Copy constructor used to copy existing SatelliteFactories Simply creates another instance.

Parameters

obj	

4.27.2 Member Function Documentation

4.27.2.1 createComponent()

```
SatelliteLauncher * SatelliteFactory::createComponent ( )  [virtual]
```

Factory makes new satellite for user.

Used to create satellites on demand for use. Creates a satellite and returns it to user.

Returns

SatelliteLauncher*

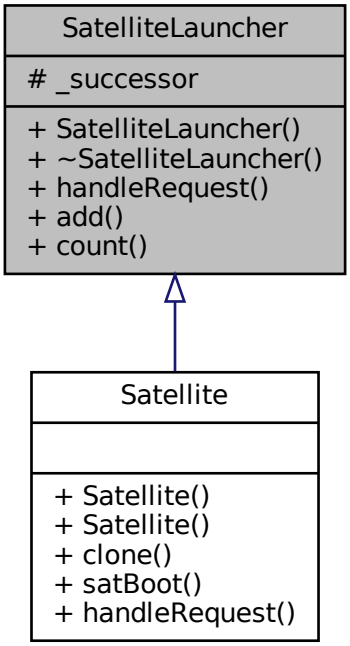
Implements Factory.

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

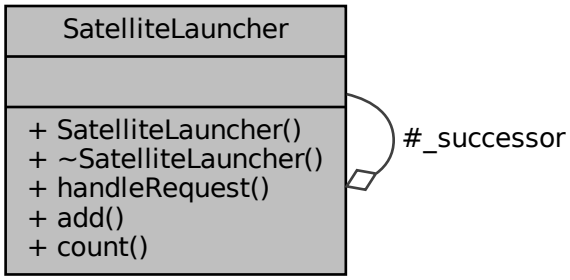
- Payload/SatelliteFactory.h
- Payload/SatelliteFactory.cpp

4.28 SatelliteLauncher Class Reference

Inheritance diagram for SatelliteLauncher:



Collaboration diagram for SatelliteLauncher:



Public Member Functions

- SatelliteLauncher ()

  Construct a new SatelliteLauncher::SatelliteLauncher object.
- ~SatelliteLauncher ()

  Destroy the SatelliteLauncher::SatelliteLauncher object.
- virtual void **handleRequest** (int number=0)=0
- void add (SatelliteLauncher *satellite)

  Adds a satellite to the chain.
- int count ()

  Counts all satellites in the chain.

Protected Attributes

- SatelliteLauncher * **_successor**

4.28.1 Constructor & Destructor Documentation

4.28.1.1 SatelliteLauncher()

```
SatelliteLauncher::SatelliteLauncher ( )
```

Construct a new SatelliteLauncher::SatelliteLauncher object.

Parent Constructor for Satellite children. Sets successor to NULL.

4.28.1.2 ~SatelliteLauncher()

```
SatelliteLauncher::~SatelliteLauncher ( )
```

Destroy the SatelliteLauncher::SatelliteLauncher object.

Destructor used to delete successor objects. Used for deletion when object my longer be used.

4.28.2 Member Function Documentation

4.28.2.1 add()

```
void SatelliteLauncher::add (
            SatelliteLauncher * satellite )
```

Adds a satellite to the chain.

Adds a satellite to the current list of satellites with use of recursion to find end. Once the end is found, new satellite is added to the end.

Parameters

satellite	

4.28.2.2 count()

```
int SatelliteLauncher::count ( )
```

Counts all satellites in the chain.

Through recursion the list is traversed incremented by 1 on each successful function call. Allows the satellites to be counted.

Returns

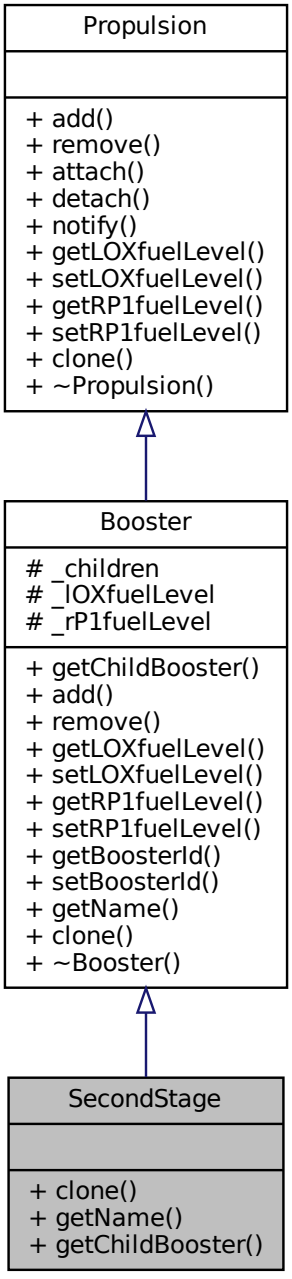
int

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

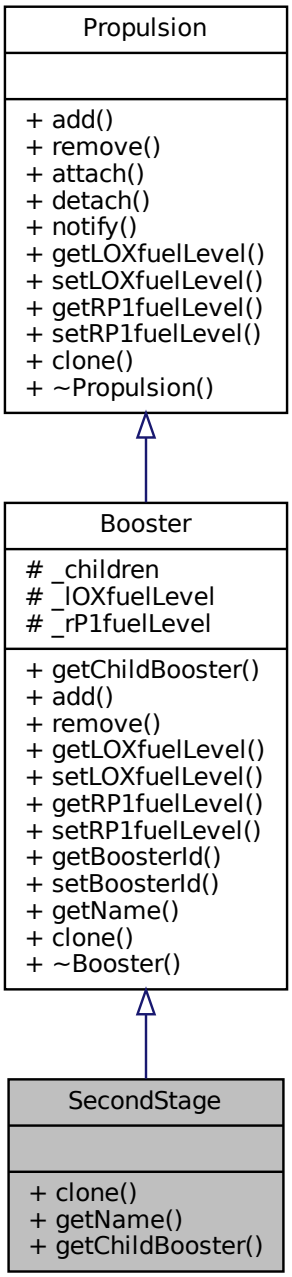
- Payload/SatelliteLauncher.h
- Payload/SatelliteLauncher.cpp

4.29 SecondStage Class Reference

Inheritance diagram for SecondStage:



Collaboration diagram for SecondStage:



Public Member Functions

- Propulsion * clone ()

  Returns a clone of the entire tree structure.
- string getName () override

  Getter for the booster name.
- Booster * getChildBooster (int index) override

  Get the Child Booster object.

Additional Inherited Members

4.29.1 Member Function Documentation

4.29.1.1 clone()

```
Propulsion * SecondStage::clone ( )  [virtual]
```

Returns a clone of the entire tree structure.

Returns

Propulsion*

Reimplemented from Booster.

4.29.1.2 getChildBooster()

```
Booster * SecondStage::getChildBooster (
            int index )  [override], [virtual]
```

Get the Child Booster object.

Gets a booster from the child, taken from children[index + 1], thus skipping over engine

Parameters

index	The index of the child booster to obtain

Returns

Booster*

Note

- This should only be used on a a Rocket/Booster that adheres to the structure made by a ConcreteBuilder

Reimplemented from Booster.

4.29.1.3 getName()

```
string SecondStage::getName ( )  [override], [virtual]
```

Getter for the booster name.

Returns

booster name as string

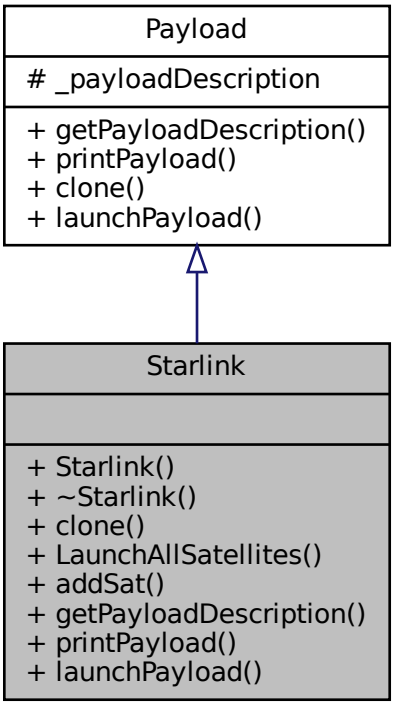
Reimplemented from Booster.

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

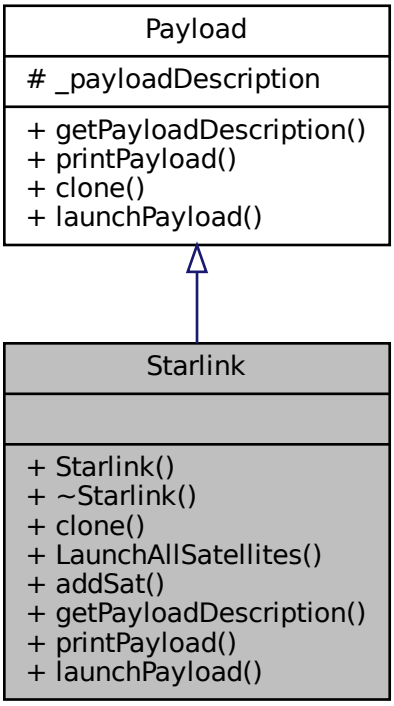
- Propulsion/SecondStage.h
- Propulsion/SecondStage.cpp

4.30 Starlink Class Reference

Inheritance diagram for Starlink:



Collaboration diagram for Starlink:



Public Member Functions

- Starlink ()

  Construct a new Starlink::Starlink object.
- ~Starlink ()

  Destroy the Starlink::Starlink object Delete the array of satelliteLaunchers.
- Payload * clone ()

  Starlink clones itself.
- void LaunchAllSatellites ()

  Simulates the the ejection by calling the head Satellite to Handle the request which goes down the chain deleting and detaching satellites.
- void addSat (SatelliteLauncher *Sat)

  Add satellite to the chain.
- string getPayloadDescription ()

  Gets the Starlink payload as a string.
- void printPayload ()

  Displays the Starlink payload to the user.
- void launchPayload ()

  Launches the starlink payload.

Additional Inherited Members

4.30.1 Constructor & Destructor Documentation

4.30.1.1 Starlink()

```
Starlink::Starlink ( )
```

Construct a new Starlink::Starlink object.

Creates the Starlink payload. Presets the payload description accoringly and then head of the list is set to NULL.

4.30.1.2 ~Starlink()

```
Starlink::~Starlink ( )
```

Destroy the Starlink::Starlink object Delete the array of satelliteLaunchers.

Destructor of Starlink payload. Since Starlink used dynamic objects we have to delete each object. Call handle↩ Request() to delete each object and nullify all locations.

4.30.2 Member Function Documentation

4.30.2.1 addSat()

```
void Starlink::addSat (
            SatelliteLauncher * Sat )
```

Add satellite to the chain.

Add satellites to the chain. With use of recursion the addition goes down the chain until free position is taken.

Parameters

Sat	

4.30.2.2 clone()

```
Payload * Starlink::clone ( )  [virtual]
```

Starlink clones itself.

Starlink clones itself and makes a brand new Starlink with all the same variables that are not shallow copied.

Returns

Starlink*

Implements Payload.

4.30.2.3 getPayloadDescription()

```
string Starlink::getPayloadDescription ( )  [virtual]
```

Gets the Starlink payload as a string.

Makes a string of the description with use of some count() to find the current number of Satellites.

Returns

string

Implements Payload.

4.30.2.4 LaunchAllSatellites()

```
void Starlink::LaunchAllSatellites ( )
```

Simulates the the ejection by calling the head Satellite to Handle the request which goes down the chain deleting and detaching satellites.

Simulates the launch of all Satellites by calling handleRequest(), but with the added functionality of checking whether satellites exist or not. This empties the payload of satellites and detaches aswell as deletes each object. Displays to the user whether or not Satellites released or not.

4.30.2.5 launchPayload()

```
void Starlink::launchPayload ( )  [virtual]
```

Launches the starlink payload.

This will deploy all starlink satellites

Implements Payload.

4.30.2.6 printPayload()

```
void Starlink::printPayload ( )  [virtual]
```

Displays the Starlink payload to the user.

Calls getPayloadDescription() and takes the already structured string to display to the user.

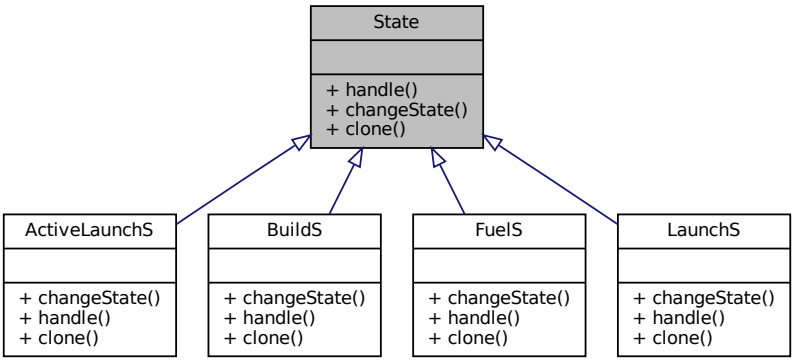
Implements Payload.

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

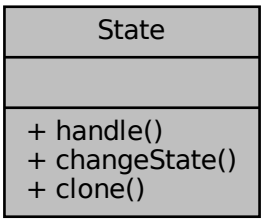
- Payload/Starlink.h
- Payload/Starlink.cpp

4.31 State Class Reference

Inheritance diagram for State:



Collaboration diagram for State:



Public Member Functions

- virtual void handle (Rocket *aR)=0

  This function handles state specific functionality.
- virtual void changeState (Rocket *aR)=0

  changes the state of the rocket
- virtual State * clone ()=0

  returns a clone of the current state

4.31.1 Member Function Documentation

4.31.1.1 changeState()

```
virtual void State::changeState (
            Rocket * aR )  [pure virtual]
```

changes the state of the rocket

Parameters

aR	The rocket which is changing state

See childrem classes for details

Implemented in BuildS, ActiveLaunchS, FuelS, and LaunchS.

4.31.1.2 handle()

```
virtual void State::handle (
            Rocket * aR )  [pure virtual]
```

This function handles state specific functionality.

Parameters

aR	The rocket that should be used for handling

see children classes for details

Implemented in BuildS, ActiveLaunchS, FuelS, and LaunchS.

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

- State/State.h

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