My Project

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Contents

Chapter 1

Namespace Index

1.1 Namespace List

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

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

Namespace Documentation

4.1 simlib.action Namespace Reference

Classes

- class Action

  Classes ##.

Functions

- def **fn** (n)
- def **fn2** (x, y)

Variables

- int **errors** = 0
- **test_obj** = None

4.1.1 Detailed Description

```
@package Action
This module defines the Action object, which is used, together with the ActionQueue class,
to implement delayed function calls.
```

4.2 simlib.archspec Namespace Reference

Classes

- class ArchSpec

  Classes ##.
- class MySubclass

Variables

- int **errors** = 0
- **archspec_obj** = ArchSpec(int , int , int)

4.2.1 Detailed Description

```
@package Architecture Specification
This module presents the simulation environment with the types of the hub, nodes, and
anchors.
```

4.3 simlib.simulated Namespace Reference

Classes

- class ActionQueue
- class Simulated

  Classes ##.

Variables

- bool **DEBUG** = True
- int **errors** = 0
- **aq** = ActionQueue( )
- **action1** = Action(aq.test, ["I was the first action added"])
- **action2** = Action(aq.test, ["then me (:"])
- **action3** = Action(aq.test, ["lastly me (;"])
- int **i** = 0

4.3.1 Detailed Description

```
@package Simulated
The simulated module contains the Simulated class that is an abstract class
that generalizes the notions fo a device, central hub, anchor and node. It
also contains the ActionQueue class that is resposuble for keeping track of
the current stated of the actions that are waiting to be executed (time until
execution).
```

Chapter 5

Class Documentation

5.1 simlib.action.Action Class Reference

Classes ##.

Public Member Functions

- def **__init__**
- def **decrement**
- def **set_fn**
- def **set_ctr**
- def get_fn (self)
- def get_args (self)
- def get_ctr (self)

5.1.1 Detailed Description

Classes ##.

```
Element of an action queue
```

5.1.2 Member Function Documentation

5.1.2.1 get_args()

```
def simlib.action.Action.get_args (
              self,
              list )
```

```
Returns the function args associated with this action.
```

5.1.2.2 get_ctr()

```
def simlib.action.Action.get_ctr (
              self,
              int )
```

Returns the counter value associated with this action.

5.1.2.3 get_fn()

```
def simlib.action.Action.get_fn (
              self,
              types,
              FunctionType )
```

Returns the function associated with this action.

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

- src/simlib/action.py

5.2 simlib.simulated.ActionQueue Class Reference

Public Member Functions

- def **__init__** (self)
- def **addToQueue**
- def popAction (self)
- def update (self)
- def test (self, test)

Public Attributes

- **queue**

5.2.1 Detailed Description

Creates instance of Action Queue

5.2.2 Member Function Documentation

5.2.2.1 popAction()

```
def simlib.simulated.ActionQueue.popAction (
              self )
```

removes the oldest Action from the list

5.2.2.2 test()

```
def simlib.simulated.ActionQueue.test (
              self,
              test )
```

Arbitrary function added for unit test.

5.2.2.3 update()

```
def simlib.simulated.ActionQueue.update (
              self )
```

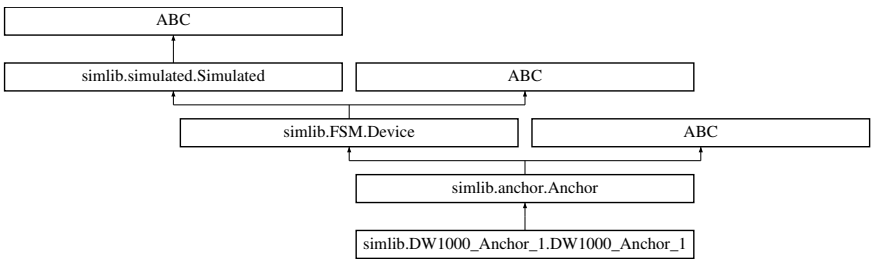
Every time the update function is called, decrement the counter of
the first action in the action queue. If the the counter is zero,
pop the action off the action queue

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

- src/simlib/simulated.py

5.3 simlib.anchor.Anchor Class Reference

Inheritance diagram for simlib.anchor.Anchor:



Public Member Functions

- def **__init__**
- def **setTime**
- def **getID** ()
- def listenForSignal ()
- def **requestPing**
- def **pingNode**
- def **waitForReply**
- def **addAction**
- def **prependAction**

Public Attributes

- **time**
- **ID**
- **xPos**
- **yPos**
- **zPos**
- **pingedNodeID**
- **measurement**
- **signalList**
- **distance**

5.3.1 Member Function Documentation

5.3.1.1 listenForSignal()

```
def simlib.anchor.Anchor.listenForSignal (
              int )
```

```
Searches to see if it is the target of any signals. Returns the sending ID
if a signal is found or 0 if no signal is found.
```

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

- src/simlib/anchor.py

5.4 simlib.archspec.ArchSpec Class Reference

Classes ##.

Public Member Functions

- def **__init__**
- def **get_hubclass** (self)
- def **get_anchorclass** (self)
- def **get_nodeclass** (self)
- def **set_hubclass**
- def **set_anchorclass**
- def **set_nodeclass**

5.4.1 Detailed Description

Classes ##.

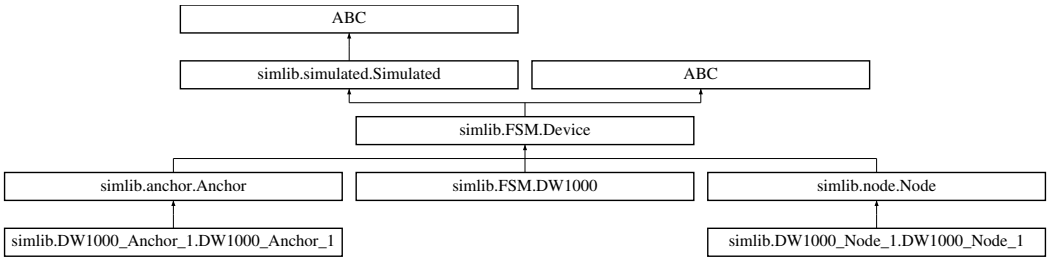
```
Architecture specification
Defines what classes to use for hub, anchors, and nodes.


The default constructor
@param hubclass The type of the central hub
@param anchorclass The type of the anchor
@param nodeclass The type of the node
```

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

- src/simlib/archspec.py

5.5 simlib.FSM.Device Class Reference

Inheritance diagram for simlib.FSM.Device:



Public Member Functions

- def **__init__** (self)
- def **__init__**
- def getState (self)
- def getAvailableNextStates (self)
- def **setNextState**
- def **getParam**

Public Attributes

- **available_states**
- **initial_state**
- **dev_state**
- **physical_data**
- **next_states**

5.5.1 Detailed Description

```
Creates an instance of a device dependent on the FSM,
physical data, and available states used to accurately
model the DW1000 or other like devices.
```

5.5.2 Member Function Documentation

5.5.2.1 getAvailableNextStates()

```
def simlib.FSM.Device.getAvailableNextStates (
              self )
```

```
Gets the possible next states from the FSM
and assigns them to the next_states.
```

5.5.2.2 getState()

```
def simlib.FSM.Device.getState (
              self,
              State )
```

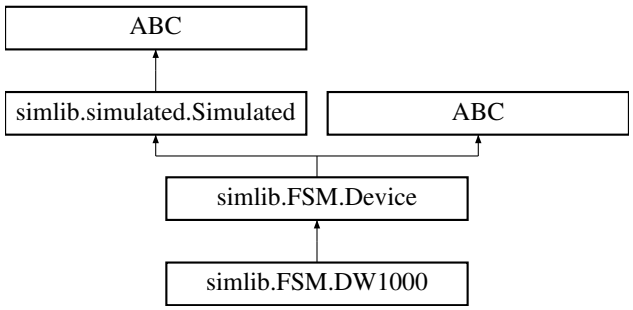
```
Returns the current state of the device.
```

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

- src/simlib/FSM.py

5.6 simlib.FSM.DW1000 Class Reference

Inheritance diagram for simlib.FSM.DW1000:



Public Member Functions

- def **__init__**
- def **mainloop**

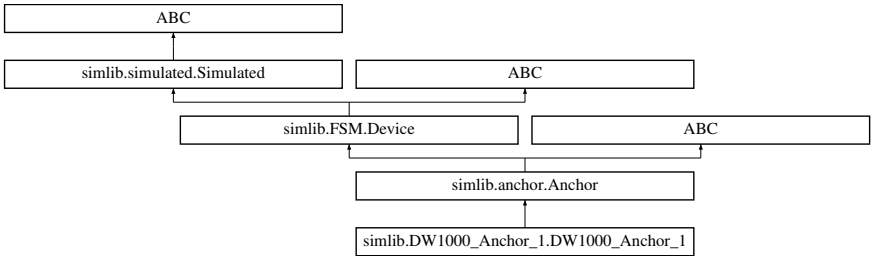
Additional Inherited Members

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

- src/simlib/FSM.py

5.7 simlib.DW1000_Anchor_1.DW1000_Anchor_1 Class Reference

Inheritance diagram for simlib.DW1000_Anchor_1.DW1000_Anchor_1:



Public Member Functions

- def **__init__**
- def **getOffCurrent** (physical_data)
- def **getDeepSleepCurrent** (physical_data)
- def **getSleepCurrent** (physical_data)
- def **getInitCurrent** (physical_data)
- def **getIdleCurrent** (physical_data)
- def **getRXCurrent** (physical_data)
- def **getTXCurrent** (physical_data)
- def **getTime** (physical_data)
- def **getBattery** (dev_data, state_data)
- def **mainloop** (self)

Public Attributes

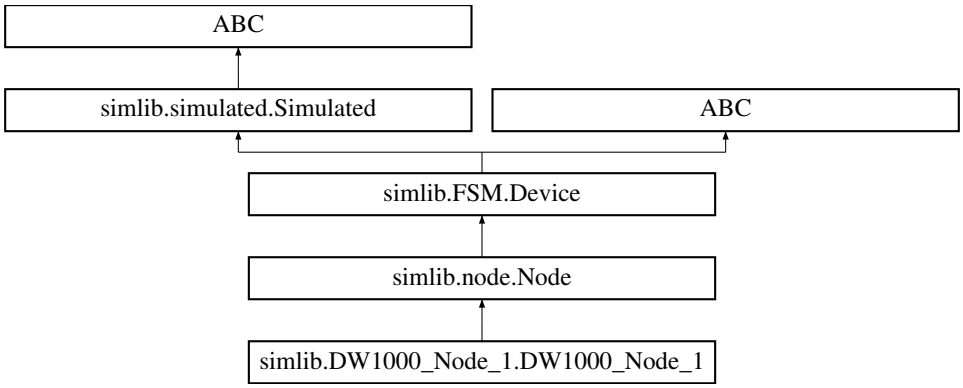
- **available_states**
- **initial_state**
- **dev_state**
- **physical_data**
- **next_states**

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

- src/simlib/DW1000_Anchor_1.py

5.8 simlib.DW1000_Node_1.DW1000_Node_1 Class Reference

Inheritance diagram for simlib.DW1000_Node_1.DW1000_Node_1:



Public Member Functions

- def **__init__**
- def **getOffCurrent** (physical_data)
- def **getDeepSleepCurrent** (physical_data)
- def **getSleepCurrent** (physical_data)
- def **getInitCurrent** (physical_data)
- def **getIdleCurrent** (physical_data)
- def **getRXCurrent** (physical_data)
- def **getTXCurrent** (physical_data)
- def **getTime** (physical_data)
- def **getBattery** (dev_data, state_data)
- def **mainloop** (self)

Public Attributes

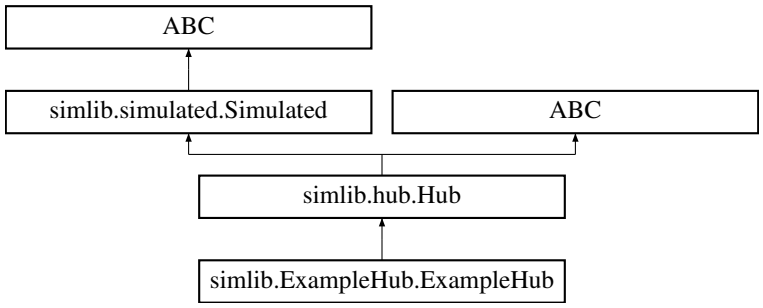
- **available_states**
- **initial_state**
- **dev_state**
- **physical_data**
- **next_states**

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

- src/simlib/DW1000_Node_1.py

5.9 simlib.ExampleHub.ExampleHub Class Reference

Inheritance diagram for simlib.ExampleHub.ExampleHub:



Public Member Functions

- def **__init__** (self)
- def **superSmartTrilaterationAlgorithm**
- def **mainloop** (self)

Public Attributes

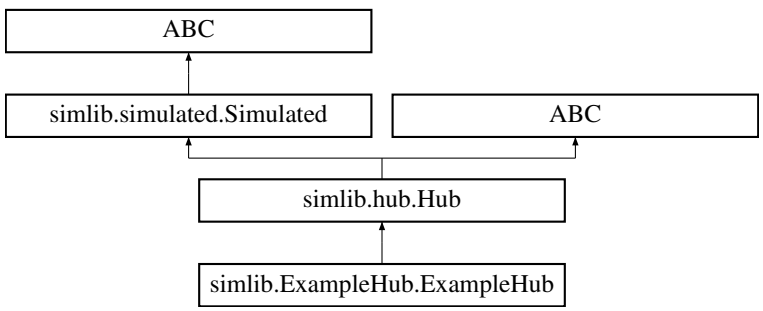
- **algorithm**

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

- src/simlib/ExampleHub.py

5.10 simlib.hub.Hub Class Reference

Inheritance diagram for simlib.hub.Hub:



Public Member Functions

- def **__init__** (self)
- def **setTime**
- def **containsAnchor**
- def **addAnchor**
- def **removeAnchor**
- def **containsNode**
- def **addNode**
- def **removeNode**
- def resetMap (self)
- def **mapDistance**
- def **getNodePosition**
- def **mapAnchorToNode**
- def **triliterateNode**
- def generateCompleteMap (self)
- def **addAction**
- def **prependAction**

Public Attributes

- **time**
- **anchors**
- **nodes**
- **map**
- **nodePositions**

5.10.1 Member Function Documentation

5.10.1.1 generateCompleteMap()

```
def simlib.hub.Hub.generateCompleteMap (
              self )
```

Generates a complete map of anchors and nodes

5.10.1.2 resetMap()

```
def simlib.hub.Hub.resetMap (
              self )
```

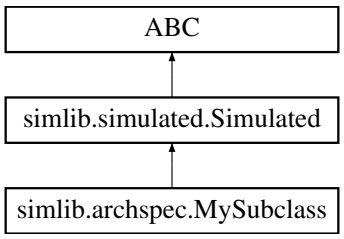
Resets the map to [][]

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

- src/simlib/hub.py

5.11 simlib.archspec.MySubclass Class Reference

Inheritance diagram for simlib.archspec.MySubclass:



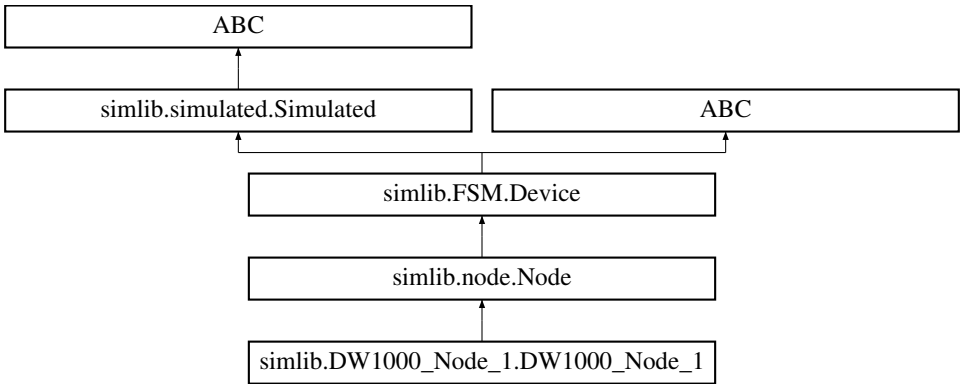
Additional Inherited Members

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

- src/simlib/archspec.py

5.12 simlib.node.Node Class Reference

Inheritance diagram for simlib.node.Node:



Public Member Functions

- def **__init__**
- def **setTime**
- def **getID** ()
- def listenForSignal ()
- def **addAction**
- def **prependAction**

Public Attributes

- **time**
- **ID**
- **xPos**
- **yPos**
- **zPos**
- **xVel**
- **yVel**
- **zVel**
- **signalList**

5.12.1 Member Function Documentation

5.12.1.1 listenForSignal()

```
def simlib.node.Node.listenForSignal (
              int )
```

```
Searches to see if it is the target of any signals. Returns the sending ID
if a signal is found or 0 if no signal is found.
```

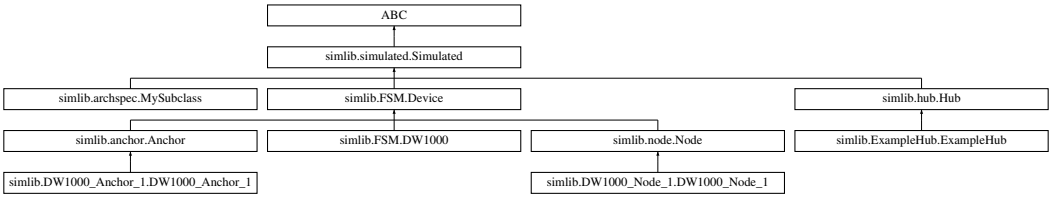
The documentation for this class was generated from the following file:

- src/simlib/node.py

5.13 simlib.simulated.Simulated Class Reference

Classes ##.

Inheritance diagram for simlib.simulated.Simulated:



Public Member Functions

- def **__init__** (self)
- def **mainloop**
- def **run_timestep**

Public Attributes

- **actionQueue**

5.13.1 Detailed Description

Classes ##.

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

- src/simlib/simulated.py

5.14 simlib.simulationenvironment.SimulationEnvironment Class Reference

Public Member Functions

- def **__init__** (self)
- def **createHub**
- def **createNode**
- def **getNodeByID**
- def **associateNode**
- def **dissassociateNode**
- def **deleteNode**
- def **createAnchor**
- def **getAnchorByID**
- def **associateAnchor**
- def **dissassociateAnchor**
- def **deleteAnchor**
- def **mainloop** (self)

Public Attributes

- **time**
- **hubs**
- **anchors**
- **nodes**
- **nextID**
- **signalList**

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

- src/simlib/simulationenvironment.py

5.15 simlib.FSM.State Class Reference

Public Member Functions

- def **__init__**
- def **getParam**

Public Attributes

- **physical_data**

5.15.1 Detailed Description

```
Creates instance of a State for the device.
```

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

- src/simlib/FSM.py

Index