

My Project

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Chapter 1

Namespace Index

1.1 Namespace List

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

simlib.action	7
simlib.archspec	7
simlib.simulated	8

Chapter 2

Hierarchical Index

2.1 Class Hierarchy

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

simlib.action.Action	9
simlib.simulated.ActionQueue	10
simlib.archspec.ArchSpec	12
simlib.simulationenvironment.SimulationEnvironment	21
simlib.FSM.State	21
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Chapter 3

Class Index

3.1 Class List

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

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simlib.simulated.ActionQueue	10
simlib.anchor.Anchor	11
simlib.archspec.ArchSpec	
Classes ##	12
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simlib.node.Node	19
simlib.simulated.Simulated	
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simlib.FSM.State	21

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
- **archspeg_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 )
```

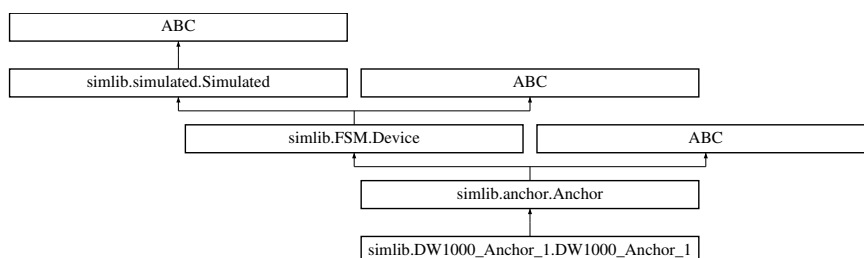
Every time the update function is called, decrement the counter of the first action in the action queue. If the counter is zero, pop the action off the action queue

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.

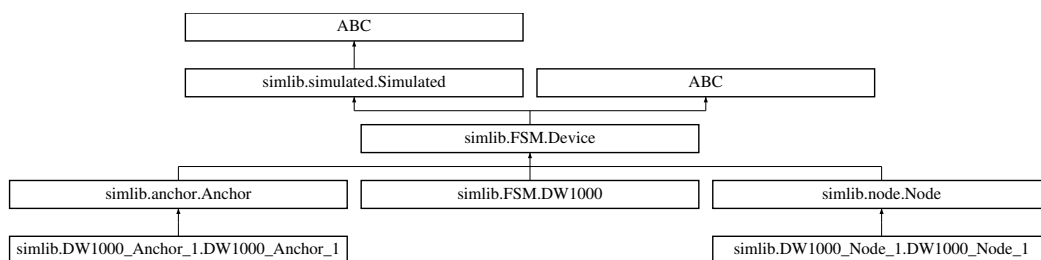
The default constructor
@param hubclass The type of the central hub
@param anchorclass The type of the anchor
@param nodeclass The type of the node

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 )
```

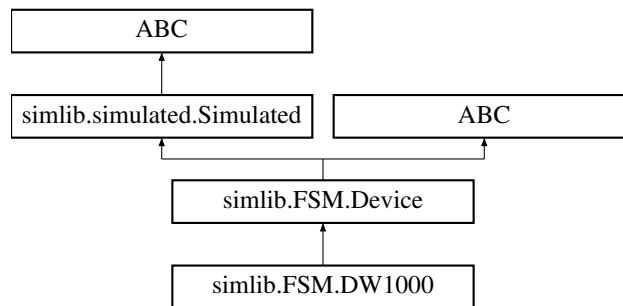
Returns the current state of the device.

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`

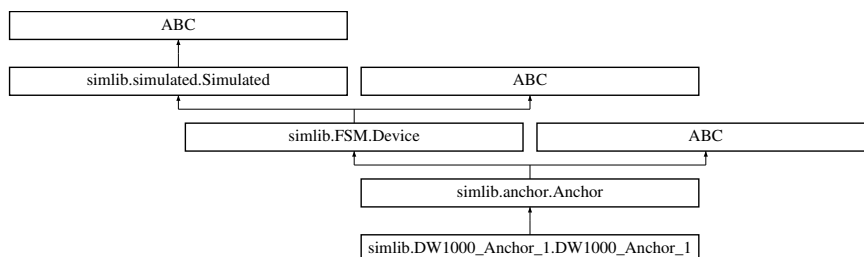
Additional Inherited Members

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

- `src/simlib/FSM.py`

5.7 simlib.DW1000_Ancor_1.DW1000_Ancor_1 Class Reference

Inheritance diagram for simlib.DW1000_Ancor_1.DW1000_Ancor_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

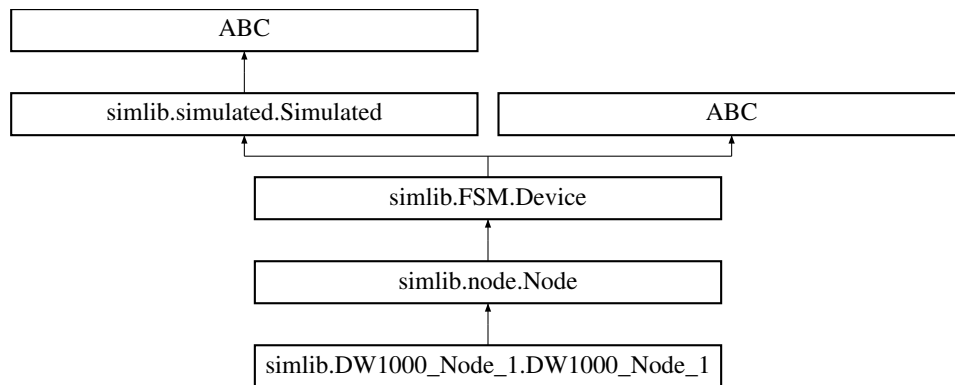
- **available_states**
- **initial_state**
- **dev_state**
- **physical_data**
- **next_states**

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

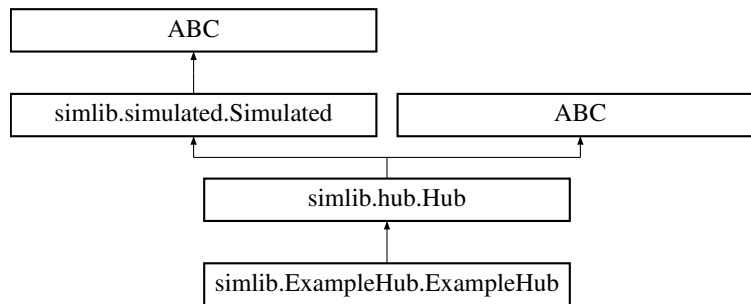
- **available_states**
- **initial_state**
- **dev_state**
- **physical_data**
- **next_states**

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

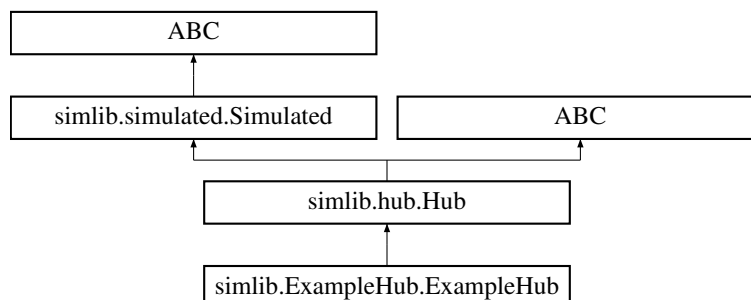
- `algorithm`

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 trilliterateNode`
- `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 )
```

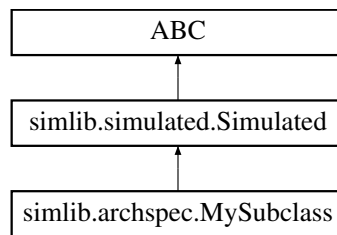
Resets the map to [[]]

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:



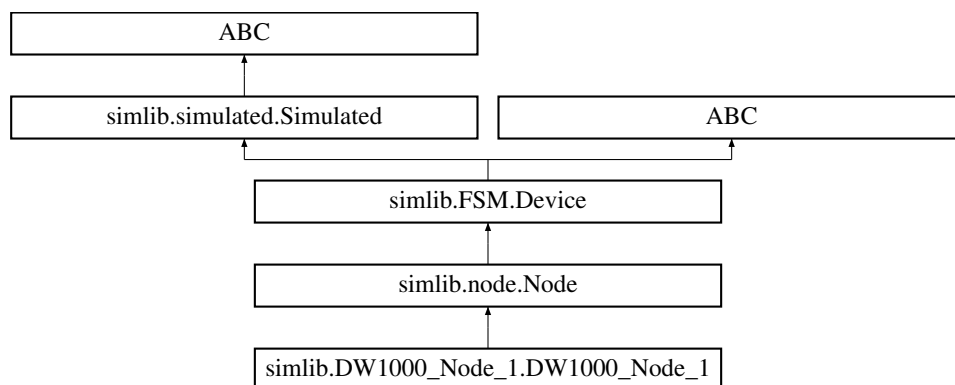
Additional Inherited Members

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.

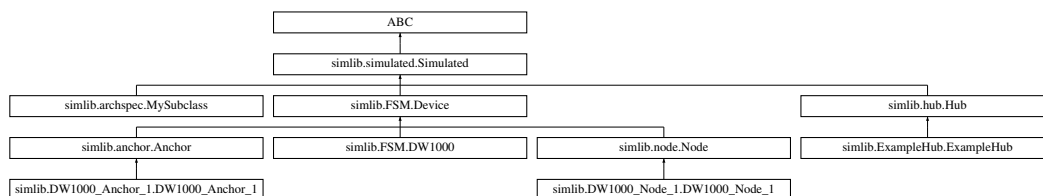
The documentation for this class was generated from the following file:

- 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`

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