

# API Documentation

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# 1 Package Birds

This package contains the most awesome game ever invented

## 1.1 Modules

- **Entity** (*Section 2, p. 3*)
- **EntityGroup** (*Section 3, p. 4*)
- **GameState** (*Section 4, p. 5*)

## 2 Module Birds.Entity

### 2.1 Class Entity

pygame.sprite.Sprite —  
Birds.Entity.Entity

This is a base class for game entities

#### 2.1.1 Methods

<code>__init__(self, gameState, entityId)</code>
--

Constructs a new entity object
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<code>update(self)</code>
---------------------------

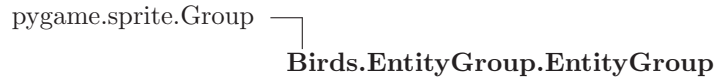
Abstract method to be overridden by inherited classes. Updates entity state through interactions with gameState object
--

#### 2.1.2 Class Variables

Name	Description
gameState	reference to master game state object <b>Value:</b> None
position	tuple to track position of this entity <b>Value:</b> []
entityId	some meaningful identifier for this entity <b>Value:</b> 0

### 3 Module *Birds.EntityGroup*

#### 3.1 Class *EntityGroup*



This class manages a group of entities and their diffused environment metrics

##### 3.1.1 Methods

<code>__init__(self, gameState, diffRate, groupName)</code>
---

<code>update(self)</code>
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Updates member entities then applies diffusion to metric arrays
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<code>getUpdatedEntities(self)</code>
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<code>addEntity(self, entity)</code>
--------------------------------------

<code>removeEntity(self, entity)</code>
---

Remove the given entity from this group
---

<code>getMetricNames(self)</code>
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Returns a list of names for metrics maintained by this group
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##### 3.1.2 Class Variables

Name	Description
groupName	A name for this group <b>Value:</b> None
gameState	A reference to the master gameState object <b>Value:</b> None
updatedEntities	A group that will contain updated entities <b>Value:</b> None
diffusionRates	dictionary of diffusion rates keyed by metric name <b>Value:</b> {}
metricArrays	dictionary of environment metric arrays keyed by metric name <b>Value:</b> {}

## 4 Module *Birds.GameState*

### 4.1 Class *GameState*

This is the top level class responsible for managing game state

#### 4.1.1 Methods

**`__init__(self)`**

Constructs a new *GameState* object

**`update(self)`**

Applies diffusion to all environment metrics. Also calls update on all entity groups

**`getAllUpdatedEntities(self)`**

Returns a list of Entity objects whose states were updated as a result of the last call to update.

**`positionToDiscrete(self, position)`**

Convert a continuous position given by position into discrete cells

**`addEntityGroup(self, groupName, diffusionRate)`**

Create a new entity group with the given group name and diffusion rate

**`removeEntityGroup(self, groupName)`**

Remove the entity group with the given name

**`addEntity(self, entity, groupName)`**

Add the given entity to the group given by groupName

**`removeEntity(self, entity, groupName)`**

Remove the given entity from the group given by groupName

**`getEntitiesAtPosition(self, position)`**

Returns a list of Entity objects who are occupying the discrete cell which contains the given position.

#### 4.1.2 Class Variables

Name	Description
entityGroups	dictionary of entity groups keyed by group name <b>Value:</b> {}
obstacleArray	A numpy array for storing diffusion obstacles <b>Value:</b> None

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