# 一、agent模块命令行参数设置



运行Examples:

python -m pysc2.bin.agent --agent pysc2.agents.random\_agent.RandomAgent --agent\_race T –-bot\_race T --map DefeatRoaches –difficulty 1

python -m pysc2.bin.play --map DefeatRoaches --save\_replay False

python -m pysc2.bin.agent --agent pysc2.agents.test.test\_multi\_agent.RandomAgent --map DefeatZerglingsAndBanelings --difficulty 1 --save\_replay False

python -m pysc2.bin.agent --agent pysc2.agents.test.test\_multi\_agent.RandomAgent --map DefeatRoaches --difficulty 1 --save\_replay False

python -m pysc2.bin.agent --agent pysc2.agents.test.test\_multi\_agent.ControllAgents --map DefeatRoaches --difficulty 1 --save\_replay False

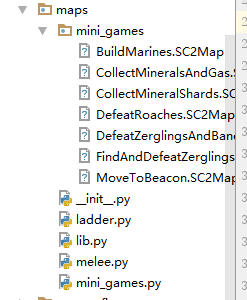
python -m pysc2.bin.agent --agent pysc2.agents.test.select\_unit.ControllUnits --map DefeatRoaches --difficulty 1 --save\_replay False

# 自己玩的代码

python -m pysc2.bin.play --map DefeatRoaches --bot\_race T --difficulty 1 --save\_replay false

# 二、maps 可以自己添加定制地图

maps 模块下



# 三、多agent环境尝试

1. 环境观测量

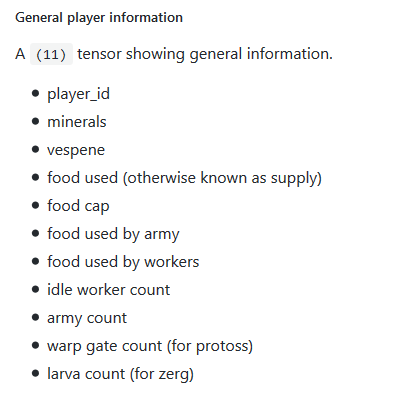


1. Timesteps



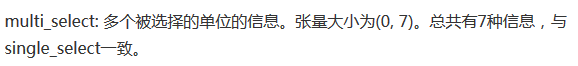
**12 种Observations:**

observations:  
**TimeStep**(step\_type=<StepType.FIRST: 0>, **reward**=0, discount=1.0,  
observation={  
**'player'**: array([1, 0, 0, 9, 0, 9, 0, 0, 9, 0, 0]),



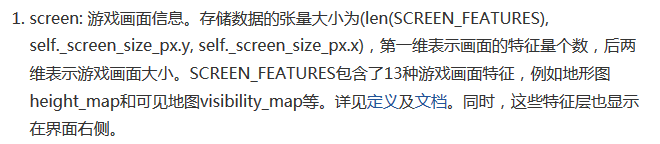
  
**'multi\_select':** array(  
[  
 [48, 1, 45, 0, 0, 0, 0],  
 [48, 1, 45, 0, 0, 0, 0],  
 [48, 1, 45, 0, 0, 0, 0],  
 [48, 1, 45, 0, 0, 0, 0],  
 [48, 1, 45, 0, 0, 0, 0],  
 [48, 1, 45, 0, 0, 0, 0],  
 [48, 1, 45, 0, 0, 0, 0],  
 [48, 1, 45, 0, 0, 0, 0],  
 [48, 1, 45, 0, 0, 0, 0]  
]),



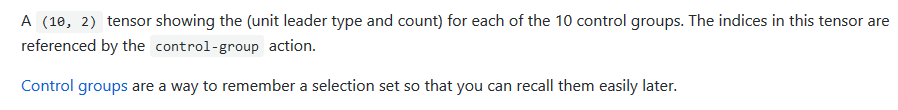
  
**'game\_loop':** array([8]),

  
**'screen':** array([[[0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 ...,  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0]],  
  
 [[0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 ...,  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0]],  
  
 [[0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 ...,  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0]],  
  
 ...,  
 [[0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 ...,  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0]],  
  
 [[0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 ...,  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0]],  
  
 [[0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 ...,  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0]]]),



  
**'control\_groups':**

array([[0, 0],  
 [0, 0],  
 [0, 0],  
 [0, 0],  
 [0, 0],  
 [0, 0],  
 [0, 0],  
 [0, 0],  
 [0, 0],  
 [0, 0]]),



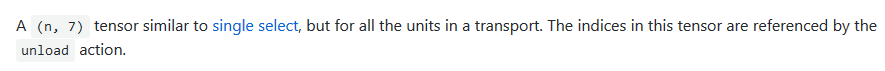
  
**'cargo\_slots\_available':** array([0]),

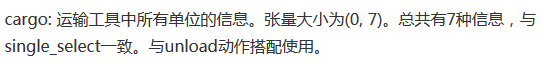
  
**'score\_cumulative':** array([ 0, 0, 0, 450, 0, 0, 0, 0, 0, 0, 0, 0, 0]),

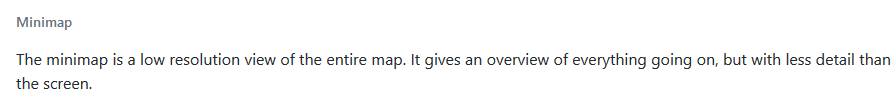
  
**'available\_actions':**  
 array([ 0, 1, 2, 3, 4, 5, 453, 7, 451, 452, 331, 332, 333,  
 334, 12, 13, 274]),

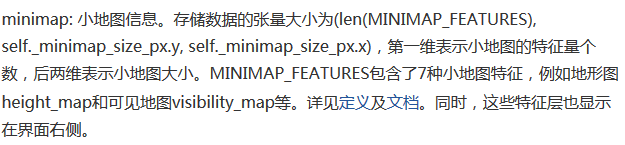


  
**'cargo':** array([], shape=(0, 7), dtype=int32),



  
**'minimap':** array([[[0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 ...,  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0]],  
  
 [[0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 ...,  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0]],  
  
 [[0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 ...,  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0]],  
  
 ...,  
 [[0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 ...,  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0]],  
  
 [[0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 ...,  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0]],  
  
 [[0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 ...,  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0],  
 [0, 0, 0, ..., 0, 0, 0]]]),

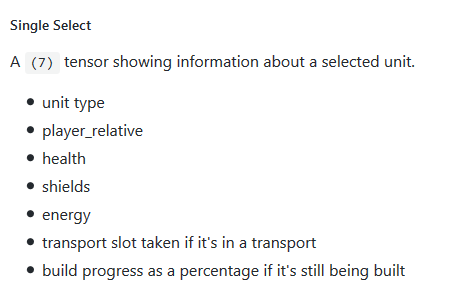


  
**'build\_queue':** array([], shape=(0, 7), dtype=int32),



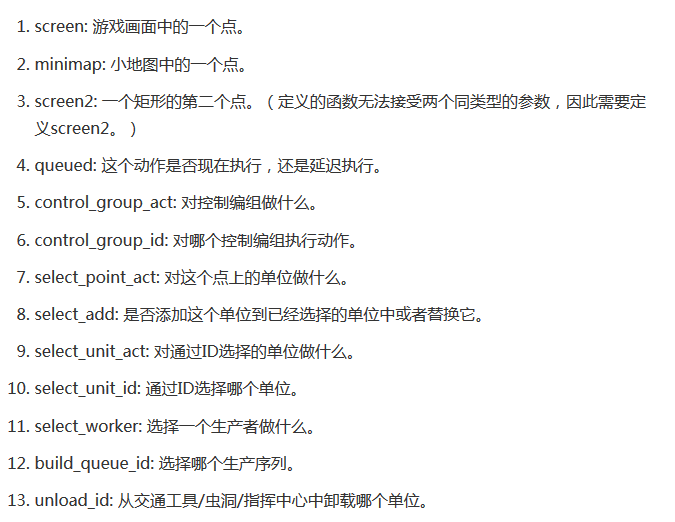


**'single\_select'**: array([[0, 0, 0, 0, 0, 0, 0]])})





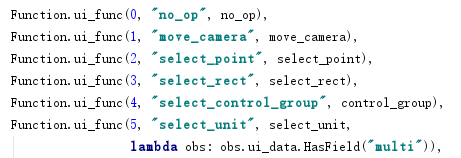
1. 动作函数
2. 参数类型

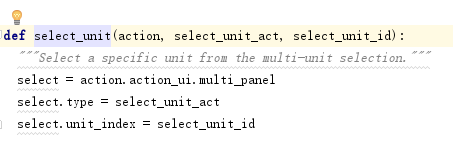


1. 例如：初始化时，可选动作集合：

*[ 0 1 2 3 4 5 453 7 451 452 331 332 333 334 12 13 274]*

[ 0 1 2 3 4 5 453 7 451 452 331 332 333 334 12 13 274]

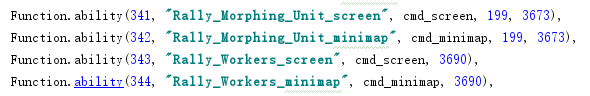












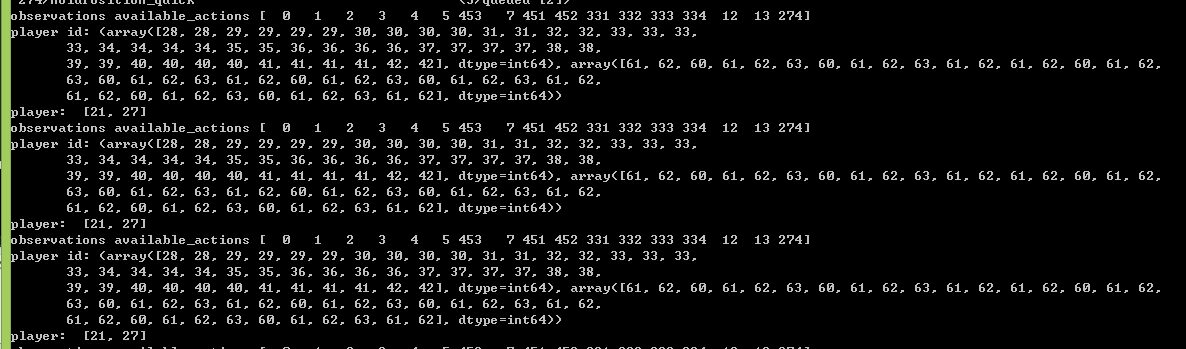




1. 如何根据ID控制每个单位？



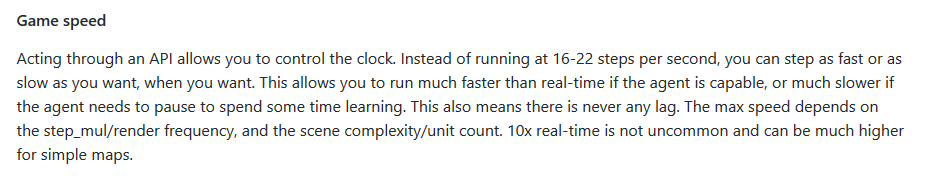




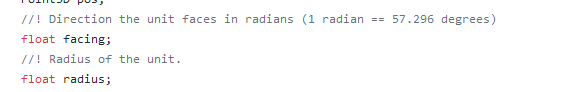
python -m pysc2.bin.agent --agent pysc2.agents.random\_agent.RandomAgent --agent\_race T –bot\_race T --map DefeatRoaches –difficulty 1

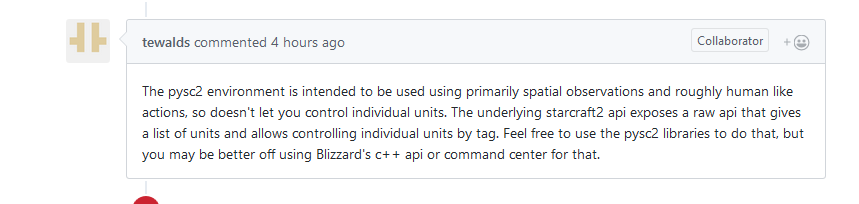
# 四、环境探索

1. Game speed：



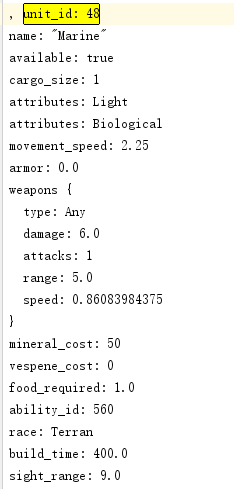
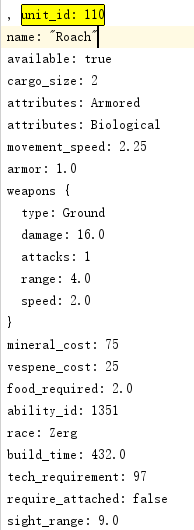
1. S2client-api：sc2-unit





1. Input pre processing
2. 修改 print

Sc2env 249,388行

​​