

Unity ml-agents环境搭建实践

最近机器学习比较火，unity3d也出了一套插件，方便开发者在unity3d 中使用。

这套插件是开源的，地址是：[ml-agents](#)

写这篇文字时，已经发布出来的稳定版本信息是：

Version	Release Date	Source	Documentation	Download	Python Package	Unity Package
main (unstable)	--	source	docs	download	--	--
Release 18	June 9, 2021	source	docs	download	0.27.0	2.1.0

最近得了点空闲，就想在本地实践下，便有了近两天的踩坑之旅。

坑后面慢慢补，先说下正确的安装流程吧！

背景补充：win10系统

1，安装Anaconda 3

官方网址：<https://www.anaconda.com/products/individual>

打开页面，到最下面，有版本可以选择



我选择的是红框选中的版本。

2, Anaconda配置

2.1 更换channel地址

找到C:\Users\<你的用户名>\.condarc”文件，这是Anaconda的配置，打开进行编辑，内容修改为：

```
channels:

- http://mirror.tuna.tsinghua.edu.cn/anaconda/pkg/free/

- http://mirror.tuna.tsinghua.edu.cn/anaconda/pkg/main/

- http://mirrors.tuna.tsinghua.edu.cn/anaconda/pkg/free/

- http://mirrors.tuna.tsinghua.edu.cn/anaconda/cloud/msys2/

- http://mirrors.ustc.edu.cn/anaconda/pkg/free/


show_channel_urls: true
```

当然你也可以用命令行来实现类似的功能，秉承这最简单粗暴的方式写教程的思路，这种高级一点的方法这里我就不做介绍了。


2.2 新建Environments

不知道Environments是什么？好吧，甩一篇教程给你。[教程](#)


继续简单粗暴之旅：


打开刚刚安装的Anaconda，如下图般操作：

ANACONDA.NAVIGATOR

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Easily back up, port, and restore any environment

[Documentation](#)

[Anaconda Blog](#)



Search Environments



base (root)

MLAgents



Create



Clone



Import



Backup



Remove

Create new environment

Name:

ML-Agents

Location:

C:\Users\yangyiqiang\.conda\envs\ML-Agents

Package:

☒ Python

3.9.7

☐ R

Cancel

Create

里的版本选下载Anaconda时对应的python版本。

2.3 配置Environments，下载依赖包

Anaconda Navigator

File Help

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base (root)

ML-Agents

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Search Packages

Name	Description	Version
ca-certificates	Certificates for use with other packages.	2021.10.26
certifi	Python package for providing mozilla's ca bundle.	2021.10.8
openssl	Openssl is an open-source implementation of the ssl and tls protocols	1.1.1l
pip	Pypa recommended tool for installing python packages	21.2.4
python	General purpose programming language	3.9.7
setuptools	Download, build, install, upgrade, and uninstall python packages	58.0.4
sqlite	Implements a self-contained, zero-configuration, sql database engine	3.36.0
tzdata	The time zone database (called tz, tzdb or zoneinfo)	2021e
vc	A meta-package to impose mutual exclusivity among software built with different vs versions	14.2
vs2015_runtime	Msvc runtimes associated with cLexe version 19.27.29111 (vs 2019 update 5)	14.27.29...
wheel	A built-package format for python.	0.37.0
wincertstore	Python module to extract ca and crt certs from windows' cert store (ctypes based).	0.2

12 packages available

点击上图所示按钮，在弹出的悬浮框里点击Open Terminal，将会弹出如下命令行窗口：

```
(ML-Agents) D:\>
```

会出现如下内容

[illegible]

此命令行的作用是安装 pytorch 包，[官网地址](#)

用的就是官网默认给出的：

Additional support or warranty for some PyTorch Stable and LTS binaries are available through the [PyTorch Enterprise Support Program](#).

PyTorch Build	Stable (1.10)	Preview (Nightly)	LTS (1.8.2)	
Your OS	Linux	Mac	Windows	
Package	Conda	Pip	LibTorch	Source
Language	Python	C++ / Java		
Compute Platform	CUDA 10.2	CUDA 11.3	ROCm 4.2 (beta)	CPU
Run this Command:	<code>conda install pytorch torchvision torchaudio cudatoolkit=10.2 -c pytorch</code>			

2.4 安装 mlagents

继续上面的命令行中输入指令：

```
python -m pip install mlagents==0.27.0
```

```
选择C:\Windows\system32\cmd.exe - conda install pytorch torchvision torchaudio cudatoolkit=10.2 -c pytorch
done

(ML-Agents) D:\>python -m pip install mlagents==0.27.0
Collecting mlagents==0.27.0
  Using cached mlagents-0.27.0-py3-none-any.whl (160 kB)
Requirement already satisfied: Pillow>=4.2.1 in c:\users\yangyiqiang\.conda\envs\ml-agents\lib\site-packages (from mlagents==0.27.0)
Collecting cattr<1.7,>=1.1.0
  Using cached cattr-1.5.0-py3-none-any.whl (19 kB)
Collecting pypiwin32==223
  Using cached pypiwin32-223-py3-none-any.whl (1.7 kB)
Requirement already satisfied: numpy<2.0,>=1.13.3 in c:\users\yangyiqiang\.conda\envs\ml-agents\lib\site-packages (from mlagents==0.27.0)
Collecting tensorboard>=1.15
  Using cached tensorboard-2.7.0-py3-none-any.whl (5.8 MB)
Collecting protobuf>=3.6
  Using cached protobuf-3.19.1-cp39-cp39-win_amd64.whl (895 kB)
Collecting h5py>=2.9.0
  Using cached h5py-3.6.0-cp39-cp39-win_amd64.whl (2.8 MB)
Collecting pyyaml>=3.1.0
  Using cached PyYAML-6.0-cp39-cp39-win_amd64.whl (151 kB)
Collecting mlagents-envs==0.27.0
  Using cached mlagents_envs-0.27.0-py3-none-any.whl (75 kB)
```

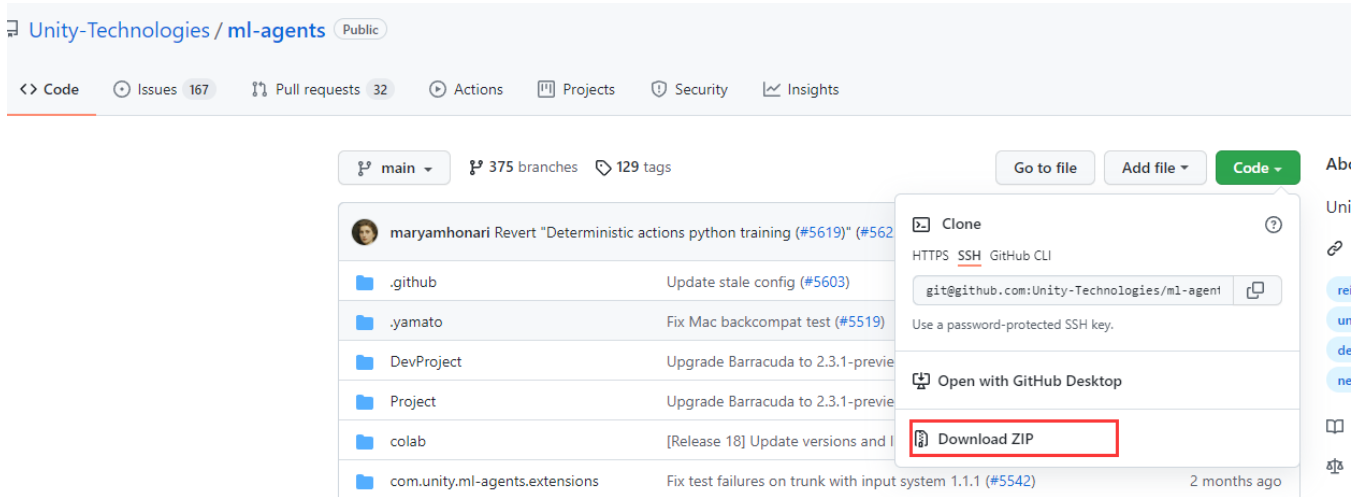
3，安装配置Unity项目

3.1 安装unit3d

这里就直接贴官方教程了，[教程](#)

3.2 下载ml-agents源码

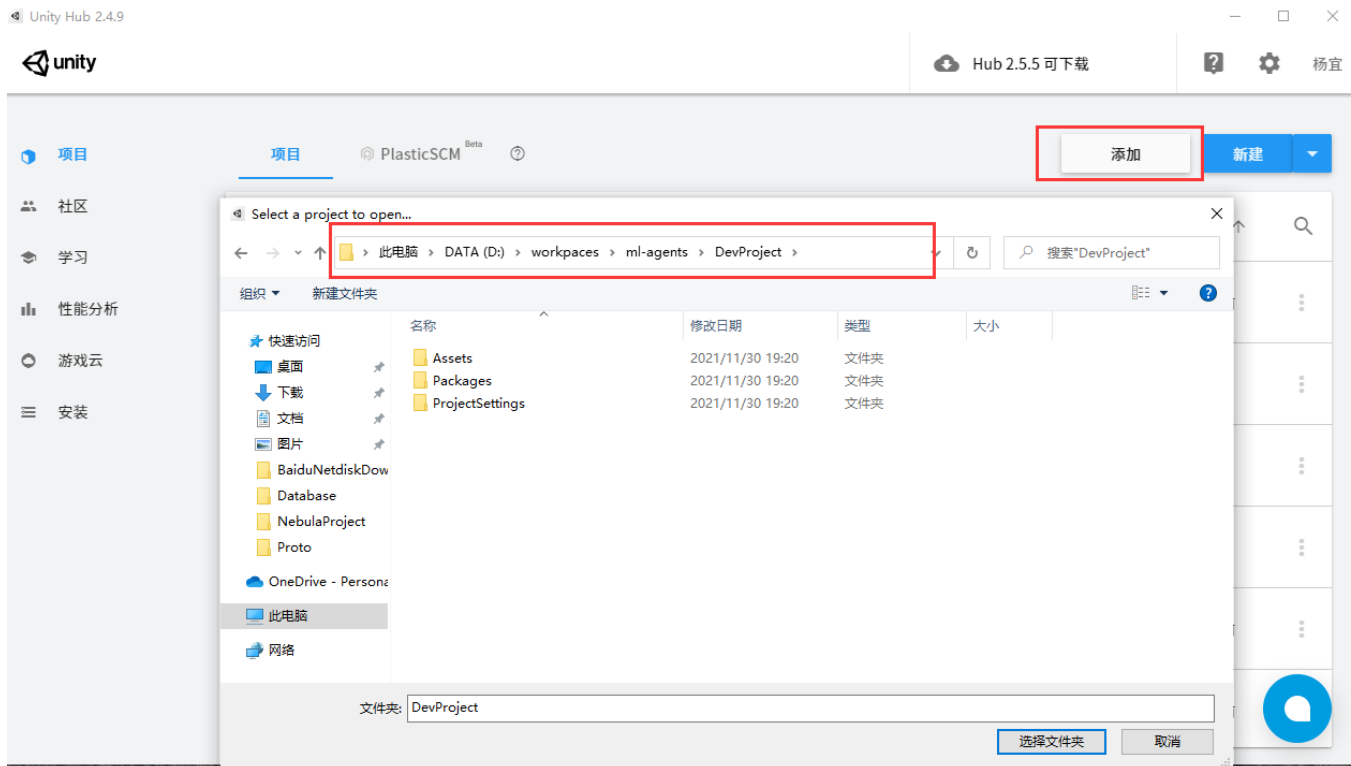
打开[官网](#)下载压缩包，如果会git的话，直接clone，可以跳到下一步。

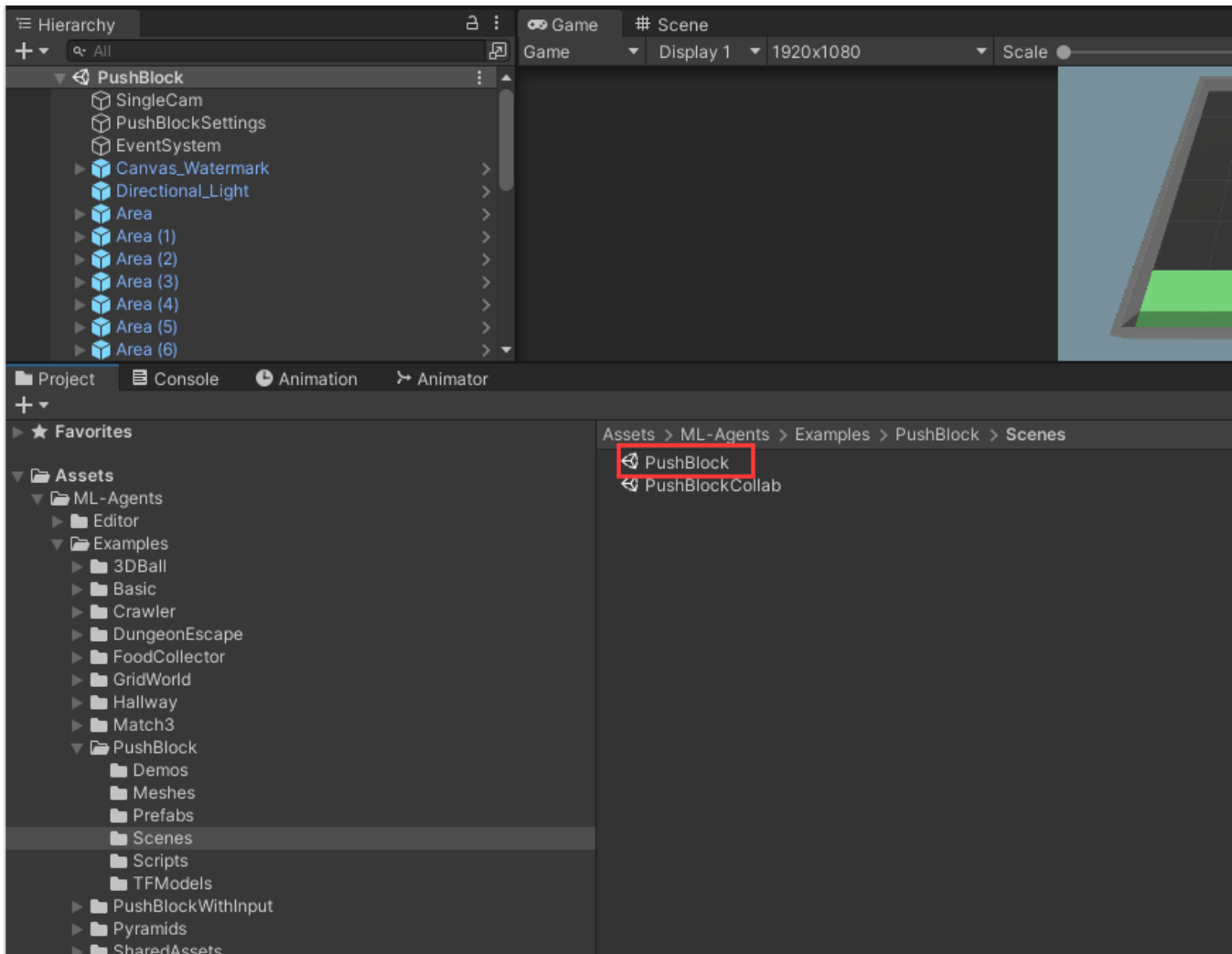


解压到D:\workpaces（路径可以自己更改，这里只说我的习惯）

3.3，添加打开项目

操作如下图所示





3.4 配置训练环境

在命令行中进入 D:\workpaces\ml-agents

```
D:
```

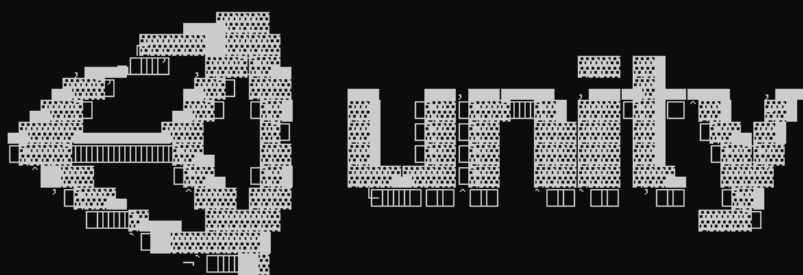
```
cd D:\workpaces\ml-agents
```

在命令行中输入

```
mlagents-learn config/ppo/PushBlock.yaml --run-id=PushBlockTrainin
```

命令行中将会出现如下画面：

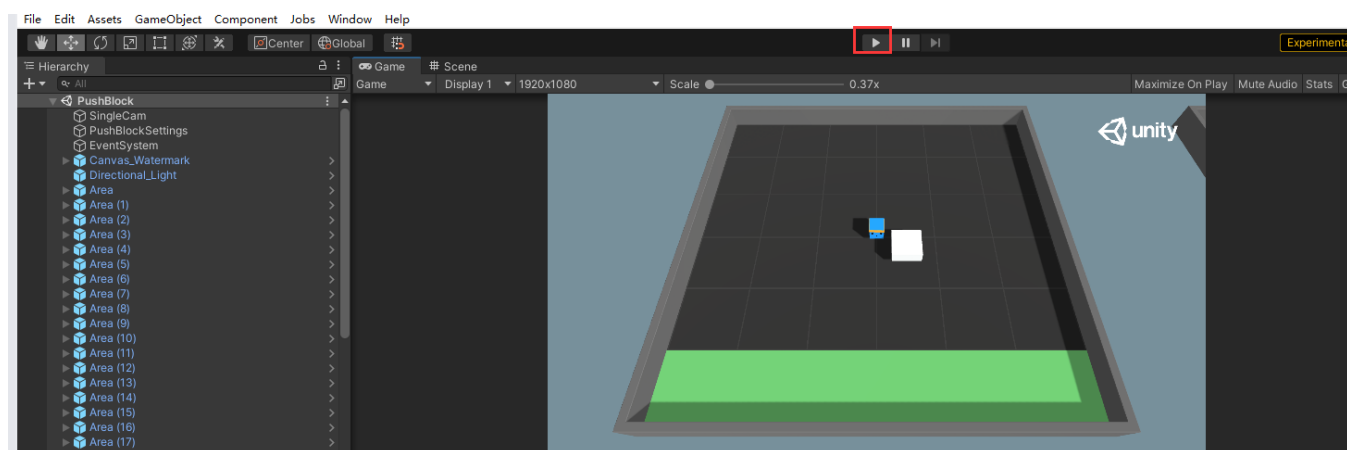

```
(ML-Agents) D:\workpaces\ml-agents>mlagents-learn config/ppo/PushBlock.yaml --run-id=PushBlockTrainin
```



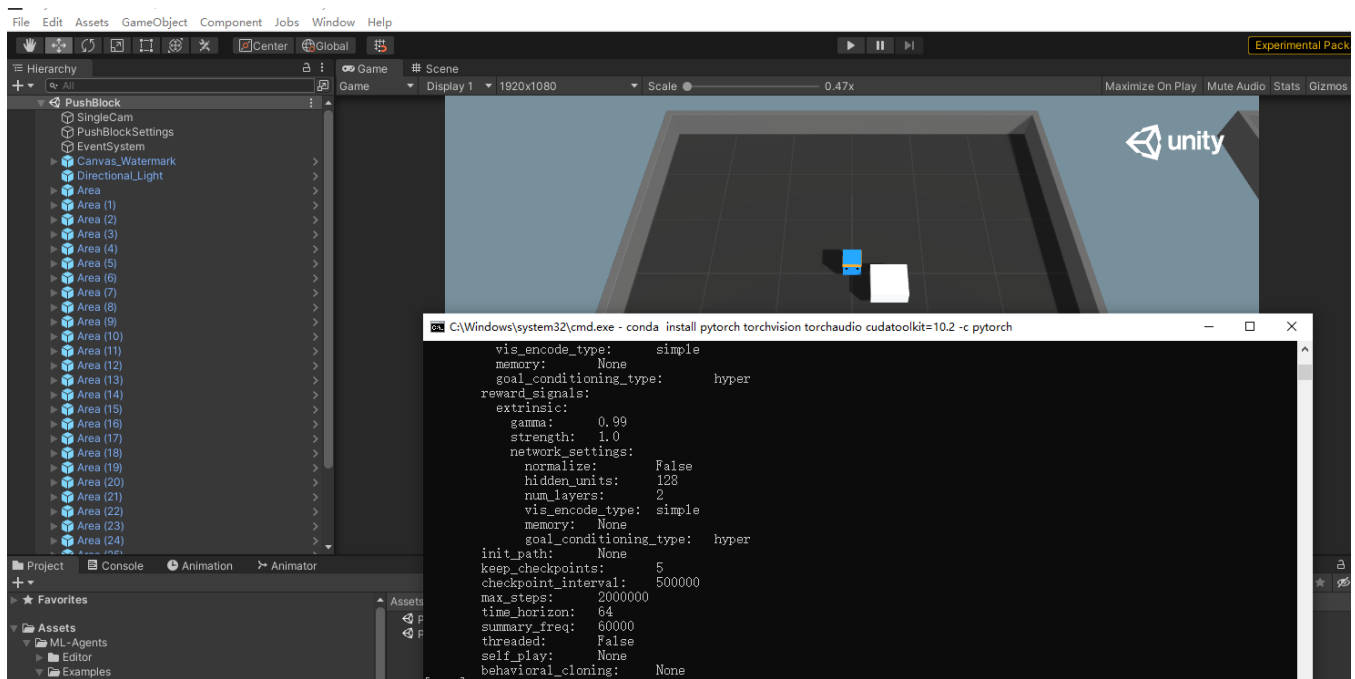
```
Version information:  
ml-agents: 0.27.0,  
ml-agents-envs: 0.27.0,  
Communicator API: 1.5.0,  
PyTorch: 1.10.0
```

回到unity3d

点击运行场景PushBlock



训练开始了。



好了，教程写完了，再记录下踩过的坑：

1. Anaconda 3 一定要选64位的
2. 原本安装过的python要卸载掉
3. channel一定要修改

好了，就这么多了！