

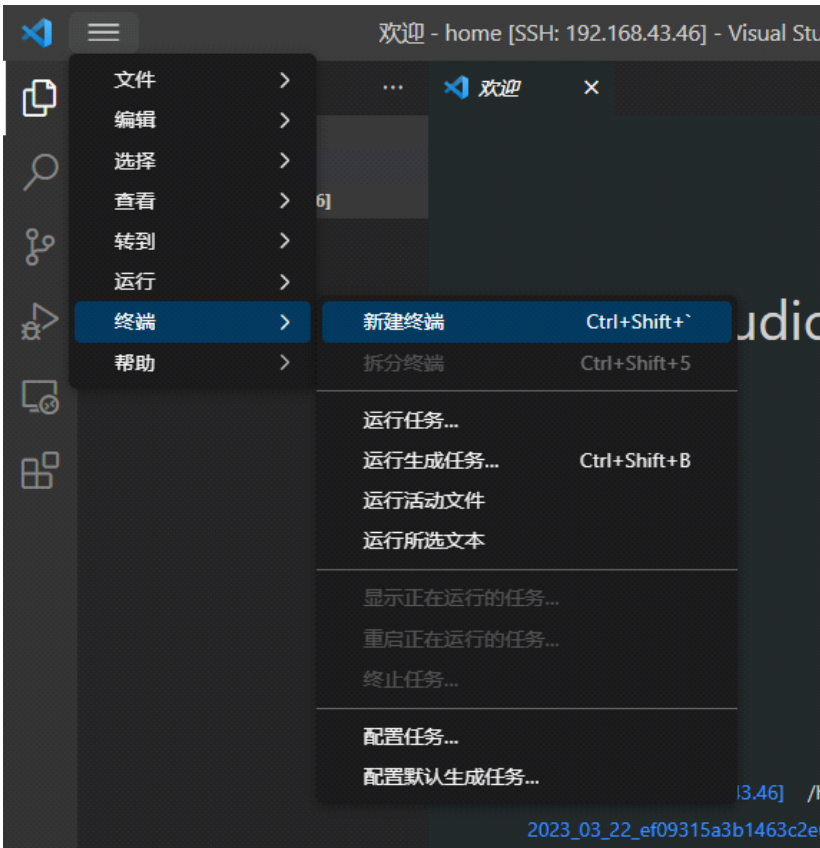
# 嵌入式：使用VScode远程控制+Tensorflow安装与测试

2023年3月28日 16:03

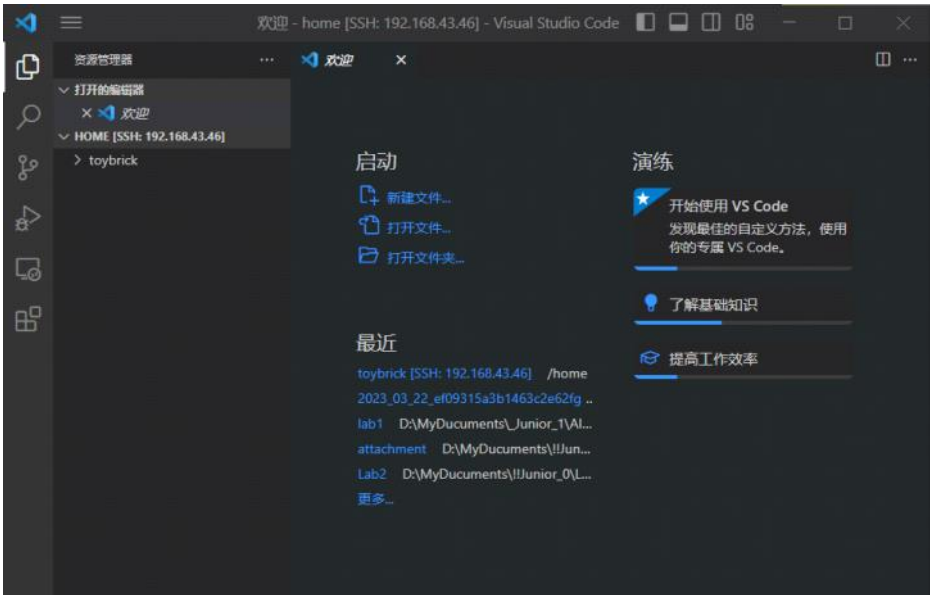


RK3399pro  
通过VSco...

## 1. 新建终端：

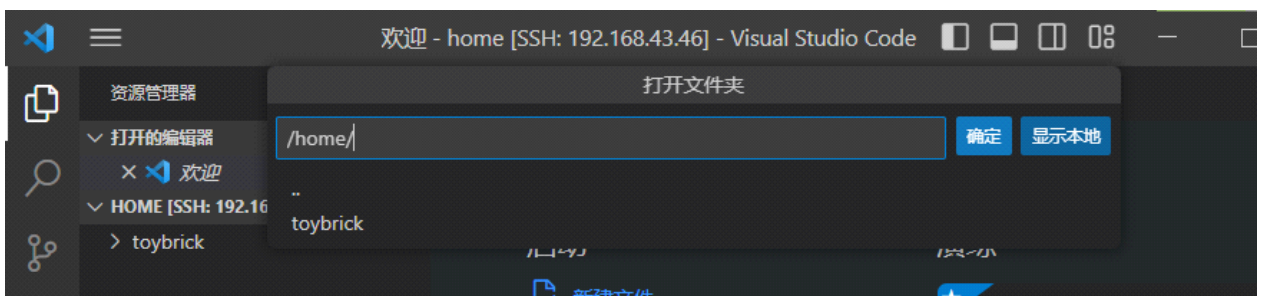
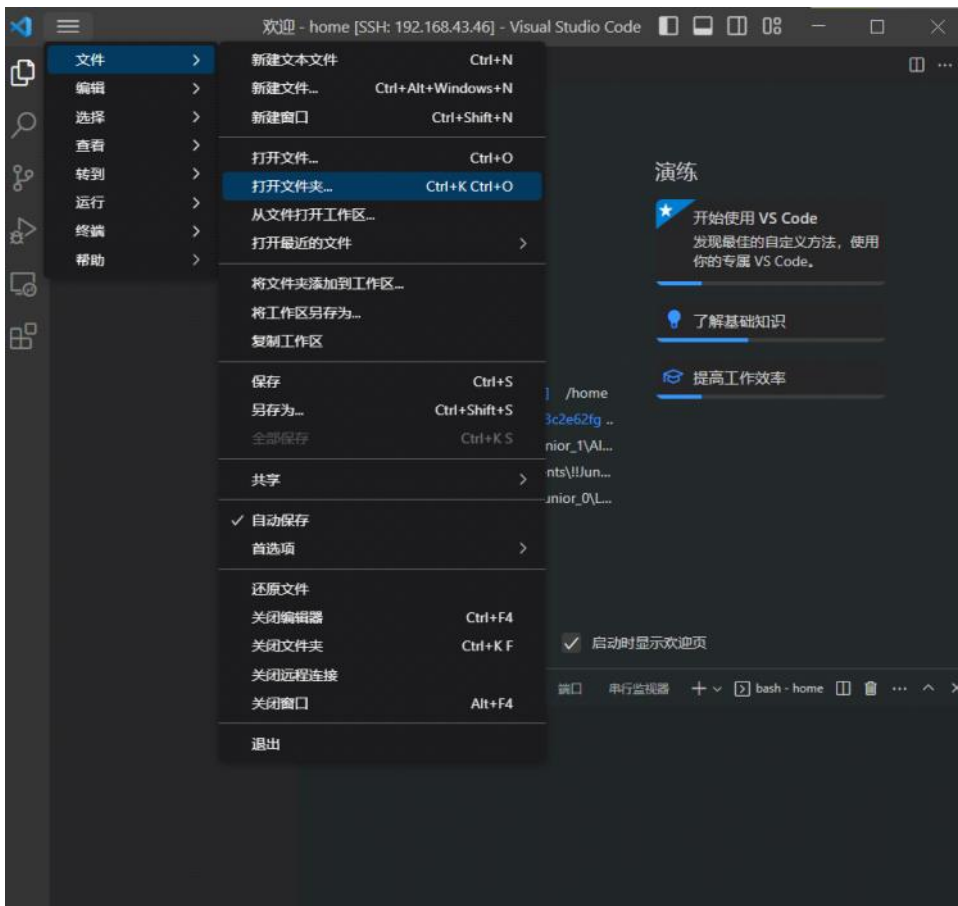


下方就会有命令行的界面

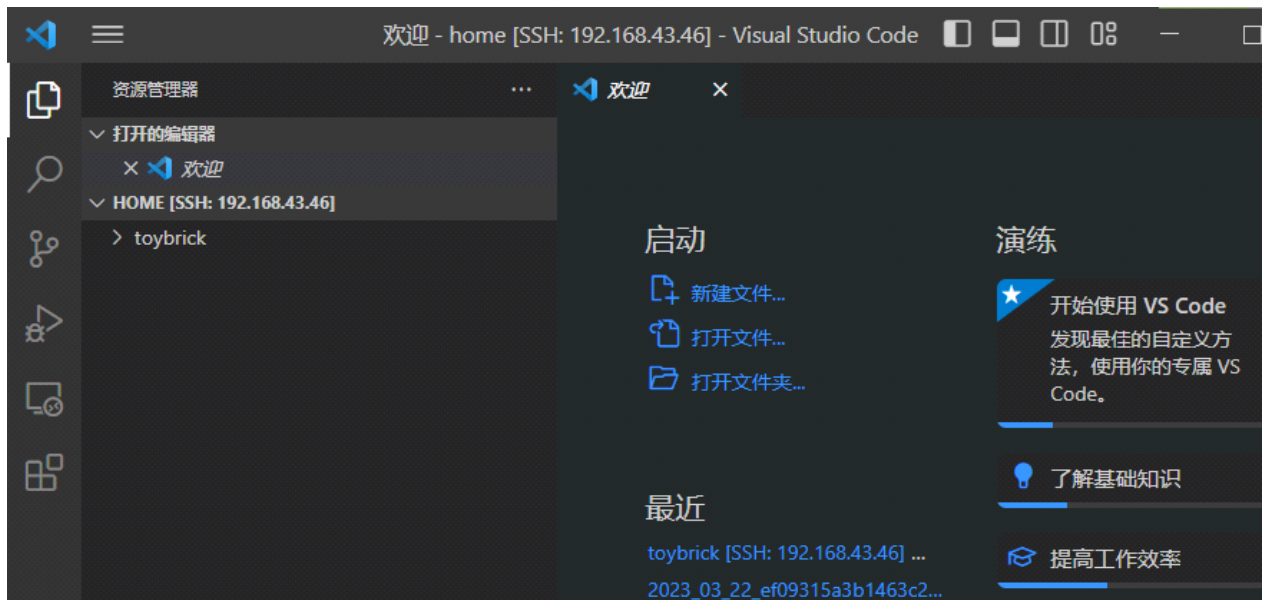




## 2、新建文件

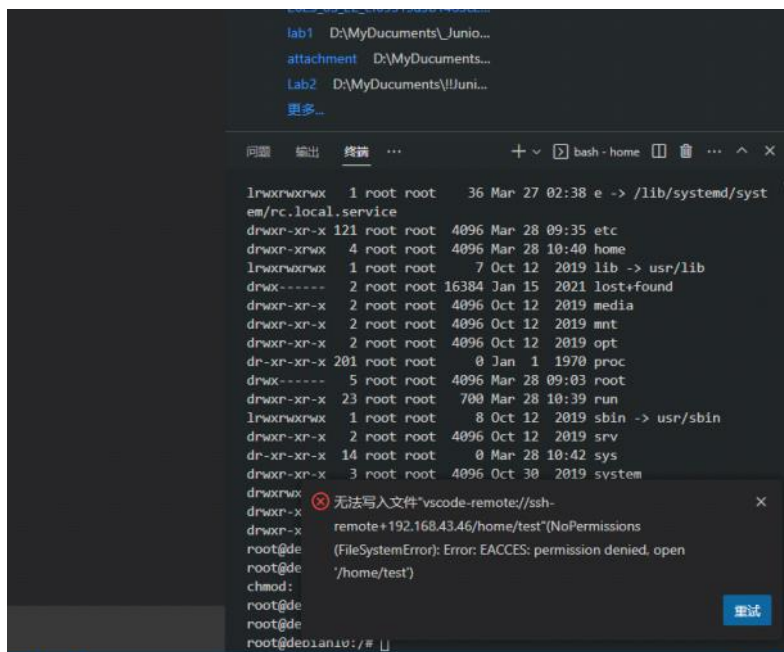
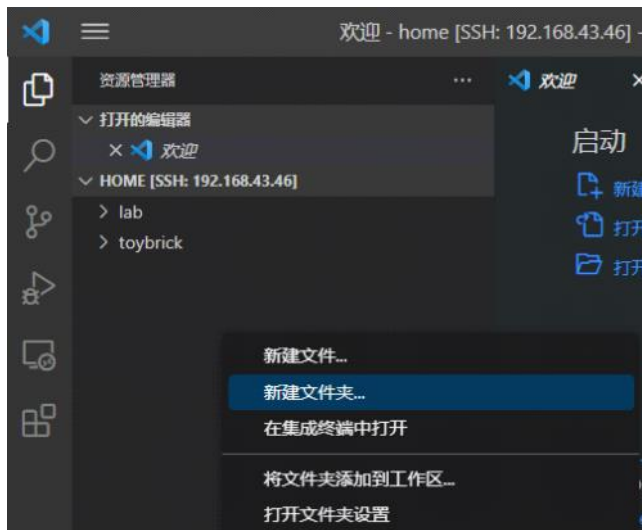


然后左侧资源管理器，会显示当前文件夹路径和ip



此时新建文件，就是新建在板子里面的了。

但是可能遇到问题，即在如下试图新建文件夹或新建文件时，提示无法写入文件

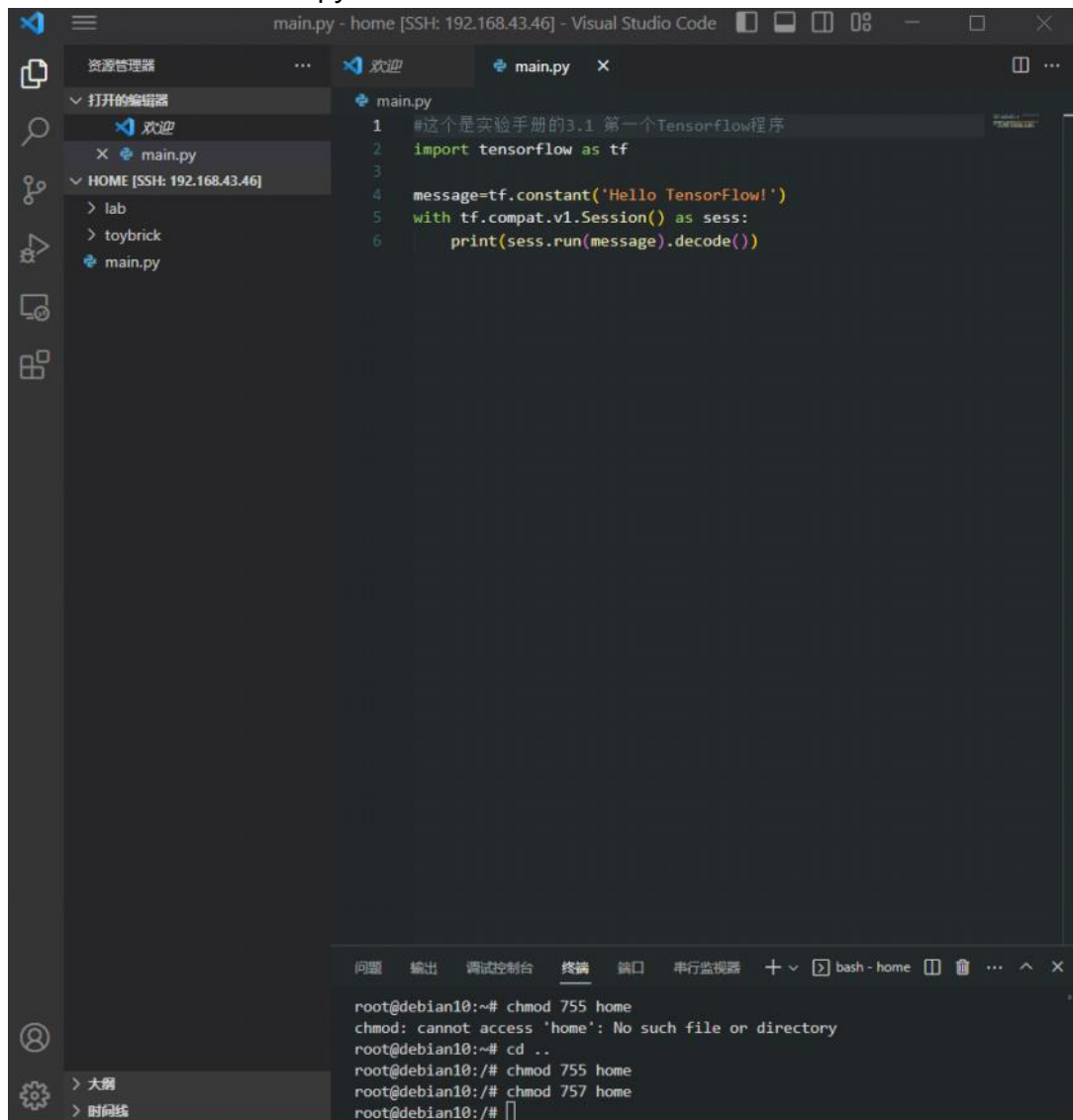


这是因为当前所在的home文件夹，远程的vscode没有权限写入它。  
切换到home的上一级目录(输入命令 `cd ..`)，

在终端里输入命令 `chmod 757 home`  
即可更改权限设置，从而能够新建文件和文件夹

### 3、写代码和运行代码

在home目录下新建main.py，输入代码



The screenshot shows the Visual Studio Code interface. The left sidebar displays the file explorer with the following structure:

- 打开的编辑器
  - main.py
- HOME [SSH: 192.168.43.46]
  - lab
  - toybrick
  - main.py

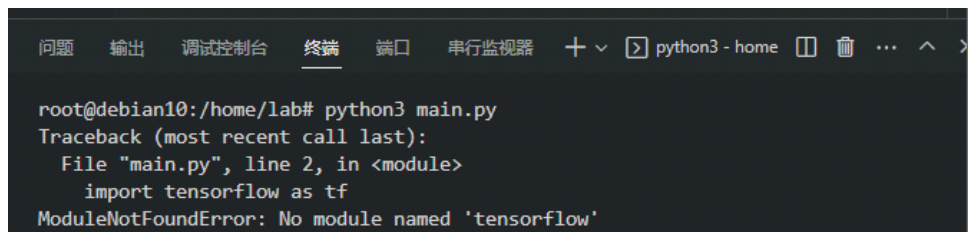
The main editor window shows the content of main.py:

```
1 #这个是实验手册的3.1 第一个Tensorflow程序
2 import tensorflow as tf
3
4 message=tf.constant('Hello TensorFlow!')
5 with tf.compat.v1.Session() as sess:
6     print(sess.run(message).decode())
```

The bottom terminal window shows the following commands and output:

```
root@debian10:~# chmod 755 home
chmod: cannot access 'home': No such file or directory
root@debian10:~# cd ..
root@debian10:~# chmod 755 home
root@debian10:~# chmod 757 home
root@debian10:~#
```

先试着在终端里运行，呃发现好像并没有安装tensorflow



The screenshot shows a terminal window with the following commands and output:

```
root@debian10:/home/lab# python3 main.py
Traceback (most recent call last):
  File "main.py", line 2, in <module>
    import tensorflow as tf
ModuleNotFoundError: No module named 'tensorflow'
```

进行一个安装: `pip install tensorflow`

```
问题 输出 调试控制台 终端 端口 ... + v python3 - home [icon] [icon] ... ^ x

root@debian10:/# pip install tensorflow
Looking in indexes: https://pypi.tuna.tsinghua.edu.cn/simple, http://repo.rock-chips.com/pypi/simple
WARNING: The repository located at repo.rock-chips.com is not a trusted or secure host and is being ignored. If this repository is available via HTTPS we recommend you use HTTPS instead, otherwise you may silence this warning and allow it anyway with '--trusted-host repo.rock-chips.com'.
Collecting tensorflow
  Downloading https://pypi.tuna.tsinghua.edu.cn/packages/e5/d9/4c7bd14210eb35c2b555ed71d4e3d7001f5a6b0eae2e455810e0aac2d1ec/tensorflow-2.11.0-cp37-cp37m-manylinux_2_17_aarch64.manylinux2014_aarch64.whl (1.9 kB)
```

会在这个building wheel for grpcio这里等超级久.....(至少20分钟)

装好之后如下，出现一个红色ERROR

```
问题 输出 调试控制台 终端 端口 串行监视器 + v bash - home [icon] [icon] ... ^ x

Building wheels for collected packages: grpcio
  Building wheel for grpcio (setup.py) ... done
  Created wheel for grpcio: filename=grpcio-1.51.3-cp37-cp37m-linux_aarch64.whl size=77781247 sha256=8ca19d37386eca6de68f07b2c903d27fddb232909456107b11143a68460fae52
  Stored in directory: /root/.cache/pip/wheels/f0/1e/28/476a53004ae736319e25313c0e21f99293c34367c488af2e4a
Successfully built grpcio
ERROR: tensorflow 2.11.2 has requirement setuptools>=41.0.0, but you'll have setuptools 40.8.0 which is incompatible.
Installing collected packages: typing-extensions, keras, numpy, h5py, absl-py, astunparse, flatbuffers, opt-einsum, google-pasta, protobuf, libclang, pyasn1, pyasn1-modules, cachetools, rsa, google-auth, zipp, importlib-metadata, markdown, MarkupSafe, werkzeug, tensorboard-plugin-wit, oauthlib, requests-oauthlib, google-auth-oauthlib, tensorboard-data-server, grpcio, tensorboard, wrapt, packaging, tensorflow-estimator, termcolor, gast, tensorflow-io-gcs-filesystem, tensorflow-cpu-aws, tensorflow
Attempting uninstall: numpy
  Found existing installation: numpy 1.16.2
  Uninstalling numpy-1.16.2:
    Successfully uninstalled numpy-1.16.2
Attempting uninstall: h5py
  Found existing installation: h5py 2.8.0
  Uninstalling h5py-2.8.0:
    Successfully uninstalled h5py-2.8.0
Successfully installed MarkupSafe-2.1.2 absl-py-1.4.0 astunparse-1.6.3 cachetools-5.3.0 flatbuffers-23.3.3 gast-0.4.0 google-auth-2.16.2 google-auth-oauthlib-0.4.6 google-pasta-0.2.0 grpcio-1.51.3 h5py-3.8.0 importlib-metadata-6.1.0 keras-2.11.0 libclang-15.0.6.1 markdown-3.4.1 numpy-1.21.6 oauthlib-3.2.2 opt-einsum-3.3.0 packaging-23.0 protobuf-3.19.6 pyasn1-0.4.8 pyasn1-modules-0.2.8 requests-oauthlib-1.3.1 rsa-4.9 tensorboard-2.11.2 tensorboard-data-server-0.6.1 tensorboard-plugin-wit-1.8.1 tensorflow-2.11.0 tensorflow-cpu-aws-2.11.0 tensorflow-estimator-2.11.0 tensorflow-io-gcs-filesystem-0.29.0 termcolor-2.2.0 typing-extensions-4.5.0 werkzeug-2.2.3 wrapt-1.15.0 zipp-3.15.0
```

说我的setuptools版本太低

手动升级一下pip install --upgrade setuptools  
(希望不会有什么兼容性问题吧)



```
问题 输出 调试控制台 终端 端口 串行监视器 + v [ ] bash - home [ ] [ ] ... ^ x

root@debian10:/# pip install --upgrade setuptools
Looking in indexes: https://pypi.tuna.tsinghua.edu.cn/simple, http://repo.rock-chips.com/pypi/simple
WARNING: The repository located at repo.rock-chips.com is not a trusted or secure host and is being ignored. If this repository is available via HTTPS we recommend you use HTTPS instead, otherwise you may silence this warning and allow it anyway with '--trusted-host repo.rock-chips.com'.
WARNING: The repository located at repo.rock-chips.com is not a trusted or secure host and is being ignored. If this repository is available via HTTPS we recommend you use HTTPS instead, otherwise you may silence this warning and allow it anyway with '--trusted-host repo.rock-chips.com'.
Collecting setuptools
  Downloading https://pypi.tuna.tsinghua.edu.cn/packages/c3/9e/8a7ba2c9984a060daa6c6f9fff4d576b7ace3936239d6b771541eab972ed/setuptools-67.6.0-py3-none-any.whl (1.1 MB)
    |████████████████████| 1.1 MB 3.8 MB/s
Installing collected packages: setuptools
  Attempting uninstall: setuptools
    Found existing installation: setuptools 40.8.0
    Uninstalling setuptools-40.8.0:
      Successfully uninstalled setuptools-40.8.0
  Successfully installed setuptools-67.6.0
```

(怕之前因为setuptools版本问题没装上tensorboard, 又试着升级了一下tensorboard, 但是好像已经都装好了, 全是requirements already satisfied)

```
2.6.8->tensorboard) (6.1.0)
Requirement already satisfied, skipping upgrade: MarkupSafe>=2.1.1 in /usr/local/lib/python3.7/dist-packages (from werkzeug>=1.0.1->tensorboard) (2.1.2)
Requirement already satisfied, skipping upgrade: requests-oauthlib>=0.7.0 in /usr/local/lib/python3.7/dist-packages (from google-auth-oauthlib<0.5,>=0.4.1->tensorboard) (1.3.1)
Requirement already satisfied, skipping upgrade: pyasn1<0.5.0,>=0.4.6 in /usr/local/lib/python3.7/dist-packages (from pyasn1-modules>=0.2.1->google-auth<3,>=1.6.3->tensorboard) (0.4.8)
Requirement already satisfied, skipping upgrade: typing-extensions>=3.6.4; python_version < "3.8" in /usr/local/lib/python3.7/dist-packages (from importlib-metadata>=4.4; python_version < "3.10"->markdown>=2.6.8->tensorboard) (4.5.0)
Requirement already satisfied, skipping upgrade: zipp>=0.5 in /usr/local/lib/python3.7/dist-packages (from importlib-metadata>=4.4; python_version < "3.10"->markdown>=2.6.8->tensorboard) (3.15.0)
Requirement already satisfied, skipping upgrade: oauthlib>=3.0.0 in /usr/local/lib/python3.7/dist-packages (from requests-oauthlib>=0.7.0->google-auth-oauthlib<0.5,>=0.4.1->tensorboard) (3.2.2)
root@debian10:/#
```

跑了一下还是不行

```
问题 输出 调试控制台 终端 端口 串行监视器 + v [ ] bash - home [ ] [ ] ... ^ x

root@debian10:/home/lab# python3 main.py
/usr/local/lib/python3.7/dist-packages/tensorflow_io/python/ops/__init__.py:98
: UserWarning: unable to load libtensorflow_io_plugins.so: unable to open file
: libtensorflow_io_plugins.so, from paths: ['/usr/local/lib/python3.7/dist-pac
kages/tensorflow_io/python/ops/libtensorflow_io_plugins.so']
caused by: ["[Errno 2] The file to load file system plugin from does not exist
.: '/usr/local/lib/python3.7/dist-packages/tensorflow_io/python/ops/libtensorf
low_io_plugins.so'"]
warnings.warn(f"unable to load libtensorflow_io_plugins.so: {e}")
/usr/local/lib/python3.7/dist-packages/tensorflow_io/python/ops/__init__.py:10
4: UserWarning: file system plugins are not loaded: unable to open file: libte
nsorflow_io.so, from paths: ['/usr/local/lib/python3.7/dist-packages/tensorflo
w_io/python/ops/libtensorflow_io.so']
caused by: ['/usr/local/lib/python3.7/dist-packages/tensorflow_io/python/ops/l
ibtensorflow_io.so: cannot open shared object file: No such file or directory'
]
warnings.warn(f"file system plugins are not loaded: {e}")
Traceback (most recent call last):
  File "main.py", line 6, in <module>
    print(sess.run(message).decode())
  File "/usr/local/lib/python3.7/dist-packages/tensorflow/python/client/sessio
n.py", line 969, in run
    run_metadata_ptr)
  File "/usr/local/lib/python3.7/dist-packages/tensorflow/python/client/sessio
n.py", line 1118, in _run
    raise RuntimeError('The Session graph is empty. Add operations to the '
RuntimeError: The Session graph is empty. Add operations to the graph before c
alling run().
```

一番搜索之后 ([\(44条消息\) 解决RuntimeError: The Session graph is empty. Add operations to the graph before calling run\(\). Holdon\\_d的博客-CSDN博客](#)) 发现, 这东西用的是Tensorflow 1.14.0!

### 3.1.2 实验环境

硬件环境:

- TB-RK3399Pro
- 显示屏
- 键盘
- 鼠标

软件环境:

- Python 3.7
- TensorFlow 1.14.0

而由于目前Tensorflow已经更新到了版本2, 所以老版本的代码行不通了, 因此要加一句代码:

```
main.py x [ ] ...

lab > main.py
1 #这个是实验手册的3.1 第一个Tensorflow程序
2 import tensorflow as tf
3 tf.compat.v1.disable_eager_execution()
4
5 message=tf.constant('Hello TensorFlow!')
6 with tf.compat.v1.Session() as sess:
7     print(sess.run(message).decode())
```

这下运行成功了

```
问题 输出 调试控制台 终端 端口 串行监视器 + v bash - home [ ] [ ] ... ^ X

root@debian10:/home/lab# python3 main.py
/usr/local/lib/python3.7/dist-packages/tensorflow_io/python/ops/__init__.py:98
: UserWarning: unable to load libtensorflow_io_plugins.so: unable to open file
: libtensorflow_io_plugins.so, from paths: ['/usr/local/lib/python3.7/dist-pac
kages/tensorflow_io/python/ops/libtensorflow_io_plugins.so']
caused by: ["[Errno 2] The file to load file system plugin from does not exist
.: '/usr/local/lib/python3.7/dist-packages/tensorflow_io/python/ops/libtensorf
low_io_plugins.so'"]
warnings.warn(f"unable to load libtensorflow_io_plugins.so: {e}")
/usr/local/lib/python3.7/dist-packages/tensorflow_io/python/ops/__init__.py:10
4: UserWarning: file system plugins are not loaded: unable to open file: libte
nsorflow_io.so, from paths: ['/usr/local/lib/python3.7/dist-packages/tensorflo
w_io/python/ops/libtensorflow_io.so']
caused by: ['/usr/local/lib/python3.7/dist-packages/tensorflow_io/python/ops/l
ibtensorflow_io.so: cannot open shared object file: No such file or directory'
]
warnings.warn(f"file system plugins are not loaded: {e}")
2023-03-28 12:19:33.392294: I tensorflow/compiler/mlir/mlir_graph_optimization
_pass.cc:357] MLIR V1 optimization pass is not enabled
Hello TensorFlow!
```