

# 1. Python第三方库下载

pip是Python的包管理器，是下载和安装Python第三方库的最常用工具之一。要使用pip，首先需要在电脑上进入DOM命令行下(WIN+R键打开)。

输入pip后，回车，出现pip的详细信息，证明可以直接使用pip下载第三方库。如果是出现不是内部命令等提示，则需要检查环境变量是否有问题。

```
C:\Users\jyqfo>pip
Usage:
  pip <command> [options]

Commands:
  install            Install packages.
  download           Download packages.
  uninstall          Uninstall packages.
  freeze             Output installed packages in requirements format.
  inspect            Inspect the python environment.
  list               List installed packages.
  show               Show information about installed packages.
  check              Verify installed packages have compatible dependencies.
  config              Manage local and global configuration.
  search              Search PyPI for packages.
  cache               Inspect and manage pip's wheel cache.
  index               Inspect information available from package indexes.
  wheel               Build wheels from your requirements.
  hash                Compute hashes of package archives.
  completion          A helper command used for command completion.
  debug               Show information useful for debugging.
  help                Show help for commands.
```

## 1.1 原始镜像下载库

如果要安装库，只需输入以下命令。

```
1 | pip install <library_name>
```

其中，<library\_name>是您要安装的库的名称。例如，要安装numpy库，只需输入以下命令。

```
1 | pip install numpy
```

```
Microsoft Windows [版本 10.0.17763.316]
(c) 2018 Microsoft Corporation。保留所有权利。
```

```
C:\Users\jyqfo>pip install numpy
```

回车之后，等待下载完成，如下所示。

```
Microsoft Windows [版本 10.0.17763.316]
(c) 2018 Microsoft Corporation。保留所有权利。

C:\Users\jyqfo>pip install numpy
Defaulting to user installation because normal site-packages is not writeable
Collecting numpy
  Downloading numpy-2.0.1-cp312-cp312-win_amd64.whl.metadata (60 kB)
  ━━━━━━━━━━━━━━━━ 60.9/60.9 kB 249.5 kB/s eta 0:00:00
  Downloading numpy-2.0.1-cp312-cp312-win_amd64.whl (16.3 MB)
  ━━━━━━━━━━━━━━ 1.2/16.3 MB 320.7 kB/s eta 0:00:48
  --
```

下载完成的效果如下 (WARNING警告暂时不用理，可能是本机环境的问题，不会影响正常使用)。

```
Microsoft Windows [版本 10.0.17763.316]
(c) 2018 Microsoft Corporation。保留所有权利。

C:\Users\jyqfo>pip install numpy
Defaulting to user installation because normal site-packages is not writeable
Collecting numpy
  Downloading numpy-2.0.1-cp312-cp312-win_amd64.whl.metadata (60 kB)
  ━━━━━━━━━━━━━━ 60.9/60.9 kB 249.5 kB/s eta 0:00:00
  Downloading numpy-2.0.1-cp312-cp312-win_amd64.whl (16.3 MB)
  ━━━━━━━━━━━━━━ 16.3/16.3 MB 53.4 kB/s eta 0:00:00
Installing collected packages: numpy
  WARNING: The scripts f2py.exe and numpy-config.exe are installed in 'C:\Users\jyqfo\AppData\Roaming\Python\Python312\Scripts' which is not on PATH.
  Consider adding this directory to PATH or, if you prefer to suppress this warning, use --no-warn-script-location.
Successfully installed numpy-2.0.1
[notice] A new release of pip is available: 24.0 → 24.2
[notice] To update, run: python.exe -m pip install --upgrade pip
C:\Users\jyqfo>
```

此时会发现，下载速度是比较慢的，特别是针对一些库比较大的时候，下载时间会很久，有什么办法可以解决呢？

## 1.2 国内镜像下载库

Python 国内镜像是为了解决在某些地区由于网络问题或者安全政策，直接访问 Python 官方镜像下载文件时速度慢或不可行的问题。国内常用的 Python 镜像有阿里云、清华大学、中国科技大学等提供的镜像服务。

使用镜像的方法通常是在安装或更新 Python 包时指定镜像源。例如，使用 pip 安装包时，可以通过 `-i` 参数指定镜像源。

例如，使用清华大学的镜像来安装 pandas 包。

```
1 | pip install -i https://pypi.tuna.tsinghua.edu.cn/simple/ pandas
```

```
Microsoft Windows [版本 10.0.17763.316]
(c) 2018 Microsoft Corporation。保留所有权利。

C:\Users\jyqfo>pip install -i https://pypi.tuna.tsinghua.edu.cn/simple/ pandas
Defaulting to user installation because normal site-packages is not writeable
Looking in indexes: https://pypi.tuna.tsinghua.edu.cn/simple/
Collecting pandas
  Downloading https://pypi.tuna.tsinghua.edu.cn/packages/22/a5/a0b255295406ed5426981
MB)
    2.5/11.5 MB 2.2 MB/s eta 0:00:05
```

可以看到，下载速度明显提高了不少，等待下载完成即可使用，下载完成如下所示。

```
Microsoft Windows [版本 10.0.17763.316]
(c) 2018 Microsoft Corporation。保留所有权利。

C:\Users\jyqfo>pip install -i https://pypi.tuna.tsinghua.edu.cn/simple/ pandas
Defaulting to user installation because normal site-packages is not writeable
Looking in indexes: https://pypi.tuna.tsinghua.edu.cn/simple/
Collecting pandas
  Downloading https://pypi.tuna.tsinghua.edu.cn/packages/22/a5/a0b255295406ed54269814bc93723cf1a0da63fb9aa
f99e1364f07923e5
MB)
    11.5/11.5 MB 3.0 MB/s eta 0:00:00
Requirement already satisfied: numpy>=1.26.0 in c:\users\jyqfo\appdata\roaming\python\python312\site-packages (from pandas)
Collecting python-dateutil>=2.8.2 (from pandas)
  Downloading https://pypi.tuna.tsinghua.edu.cn/packages/ec/57/56b9bcc3c9c6a792fcba
f139543cee77261f3651ca9da0c93f5c1221264b
whl (229 kB)
    229.9/229.9 kB 2.0 MB/s eta 0:00:00
Collecting pytz>=2020.1 (from pandas)
  Downloading https://pypi.tuna.tsinghua.edu.cn/packages/9c/3d/a121f284241f08268b21359bd425f7d4825cffc5ac5cd0e1b3d82ff
d2b10
    505.5/505.5 kB 2.6 MB/s eta 0:00:00
Collecting tzdata>=2022.7 (from pandas)
  Downloading https://pypi.tuna.tsinghua.edu.cn/packages/65/58/f9c9e6be752e9fc8b6a0ee9fb87e6e7a1f6bcab2cdc73f02bb7ba91ada0
    345.4/345.4 kB 1.5 MB/s eta 0:00:00
Collecting six>=1.5 (from python-dateutil>=2.8.2->pandas)
  Downloading https://pypi.tuna.tsinghua.edu.cn/packages/d9/5a/e7c31adbe875f2abbb91bd84cf2dc52d792b5a01506781dbc
f25c91daf1
Installing collected packages: pytz, tzdata, six, python-dateutil, pandas
Successfully installed pandas-2.2.2 python-dateutil-2.9.0.post0 pytz-2024.1 six-1.16.0 tzdata-2024.1

[notice] A new release of pip is available: 24.0 -> 24.2
[notice] To update, run: python.exe -m pip install --upgrade pip
```

C:\Users\jyqfo>

## 1.3 测试是否下载成功

可以在编译器上直接导入该库，然后进行运行，没有报错，则证明下载成功，如下所示。

The screenshot shows the PyCharm IDE interface. In the top-left corner, there's a file tree with a project named 'pythonProject' containing a file 'test1.py'. The main window displays the code for 'test1.py':

```
1 import numpy as np
2 import pandas as pd
3
```

A blue arrow points from the number '3' in the code to the text 'Process finished with exit code 0' in the terminal below. The terminal also shows the command used to run the script: "C:\Program Files\Python312\python.exe" C:\Users\jyqfo\PycharmProjects\pythonProject\test1.py.

## 1.4 pip其他操作

- 使用pip卸载库

```
1 | pip uninstall package_name
2 | pip uninstall numpy
```

The screenshot shows a Windows terminal window. It starts with the system information: Microsoft Windows [版本 10.0.17763.316] (c) 2018 Microsoft Corporation. 保留所有权利。 Then it shows the command: C:\Users\jyqfo>pip uninstall numpy. The output indicates an existing installation of numpy 2.0.1 is found and is being uninstalled. It lists the files that will be removed, including f2py.exe, numpy-config.exe, and various numpy library files. Finally, it asks the user if they want to proceed with the deletion, with 'y' highlighted by a blue arrow.

```
C:\Users\jyqfo>pip uninstall numpy
Found existing installation: numpy 2.0.1
Uninstalling numpy-2.0.1:
Would remove:
  c:\users\jyqfo\appdata\roaming\python\python312\scripts\f2py.exe
  c:\users\jyqfo\appdata\roaming\python\python312\scripts\numpy-config.exe
  c:\users\jyqfo\appdata\roaming\python\python312\site-packages\numpy-2.0.1-cp312-cp312-win_amd64.whl
  c:\users\jyqfo\appdata\roaming\python\python312\site-packages\numpy-2.0.1.dist-info\*
  c:\users\jyqfo\appdata\roaming\python\python312\site-packages\numpy.libs\libscipy_openblas64_-fb1711452d1449e5c7.dll
  c:\users\jyqfo\appdata\roaming\python\python312\site-packages\numpy.libs\msvcpl40-8021418012832a07a8ca511
Proceed (Y/n)? y-
```

- 使用pip列出所有已安装的库

```
1 | pip list
```

```
Microsoft Windows [版本 10.0.17763.316]
(c) 2018 Microsoft Corporation。保留所有权利。
```

```
C:\Users\jyqfo>pip list
Package           Version
-----
certifi          2024.7.4
charset-normalizer 3.3.2
idna             3.7
numpy            2.0.1
pandas           2.2.2
pip              24.0
python-dateutil  2.9.0.post0
pytz              2024.1
requests         2.32.3
six               1.16.0
tzdata           2024.1
urllib3          2.2.2
```

- 使用pip升级库

```
1 | pip install --upgrade package_name
2 | pip install --upgrade pandas
```