

# How to install the python packages with pip through ST Proxy

Author : Leo WU ([leo.wu@st.com](mailto:leo.wu@st.com))

Version : 1.0.0 (2023/08/19)

## NOTE

I assume that you know how to create the python environment and the basic commands of python and pip, and the basic knowledge of internet, but in this tutorial you can ignore all of it, just follow the procedures

Here, I will list some basic knowledge, if you are not familiar with these, you can search it on Google

- Anaconda - The tool which managing the python environment
- URL format - The format which is used to transfer the data through web
- Proxy connection format - The command

## Limitation

- Strongly recommend DO NOT use '@' in your password, if you are using '@' in password, please change your password without

using it, because it will generate some conflicts in proxy connection string

## Abstract

We are all struggling from the proxy connection issues in ST when we want to install some needed packages in our python environment

But, there is almost no official documents to teach us how to use/follow the proxy policy to connect the server outside ST

I spent a lot of time to figure out how to set up the configuration with ST proxy server, it was painful

So, I want to share to all of you how to set up the configuration and save you time to find how to fix this issue

I prepare some case studies to help you to configurate the setting, you can just choose the one which you prefer

## Introduce ST Proxy

In ST, if you want to connect to internet, it will always connect to ST proxy server first then connecting to outside internet server

The connection script would in this link : <http://lps-eu.st.com/>

You can download connection script from this link, but for this tutorial it's not necessary

The IP address of ST proxy server is :

- 165.225.76.32:80 (Europe)

- 165.225.112.8:80 (Pacific)
- 165.225.94.12:80 (Pacific)

If you really want to know which IP is close to your region, you can download the connection script and check it

## The issue when you want to install the python package with pip

When you want to install some python packages through pip (python package manager), sometimes you may encounter this error message

```
(st_proxy) C:\Users\leo wu>pip install numpy
WARNING: Retrying (Retry(total=4, connect=None, read=None, redirect=None, status=None)) after connection broken by 'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection object at 0x0000020828925800>: Failed to establish a new connection: [Errno 11001] getaddrinfo failed')': /simple/numpy/
WARNING: Retrying (Retry(total=3, connect=None, read=None, redirect=None, status=None)) after connection broken by 'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection object at 0x00000208287F8AD0>: Failed to establish a new connection: [Errno 11001] getaddrinfo failed')': /simple/numpy/
WARNING: Retrying (Retry(total=2, connect=None, read=None, redirect=None, status=None)) after connection broken by 'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection object at 0x0000020828930F90>: Failed to establish a new connection: [Errno 11001] getaddrinfo failed')': /simple/numpy/
WARNING: Retrying (Retry(total=1, connect=None, read=None, redirect=None, status=None)) after connection broken by 'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection object at 0x0000020828931950>: Failed to establish a new connection: [Errno 11001] getaddrinfo failed')': /simple/numpy/
WARNING: Retrying (Retry(total=0, connect=None, read=None, redirect=None, status=None)) after connection broken by 'NewConnectionError('<pip._vendor.urllib3.connection.HTTPSConnection object at 0x0000020828932350>: Failed to establish a new connection: [Errno 11001] getaddrinfo failed')': /simple/numpy/
ERROR: Could not find a version that satisfies the requirement numpy (from versions: none)
ERROR: No matching distribution found for numpy
```

This is because ST refuses you to connect to outside server without using ST proxy server, so you need to do some settings to connect to ST Proxy server first then you can connect to outside server

## Materials (You don't need to check it now, you can come back to find what you need after)

- Proxy connection strings

Use this website (<https://www.urlencoder.org>) to encode the connection strings, it can help you to replace invalid strings

Because if you want to proxy connection strings, you need to follow string protocol of Internet  
The proxy connection strings is

```
http://USERNAME:PASSWORD@PROXY_SERVER:PORT
```

So, for example, if your username is `leo wu` and password is `1234!QWER#`

Put it into the website, you can get the encoded string username would be `leo%20wu` , and the password would be `1234%21QWER%23`

Replace the `USERNAME` , `PASSWORD` , `PROXY_SERVER` and `PORT` to

```
http://leo%20wu:1234%21QWER%23@163.225.76.32:80
```

This connection strings are the valid proxy connection strings

- Windows Credential Mangers

Press `windows + R` to open the run dialog then key `control.exe keymgr.dll` in the string bar, it will open Windows Credential Manager

Or you can open `control panel` find `Credential Manager` and open it

## Choose Windows Credentials

### Manage your credentials

View and delete your saved logon information for websites, connected applications and networks.



**Web Credentials**



**Windows Credentials**

[Back up Credentials](#) [Restore Credentials](#)

## Click Add a Windows Credential

### Manage your credentials

View and delete your saved logon information for websites, connected applications and networks.



**Web Credentials**



**Windows Credentials**

[Back up Credentials](#) [Restore Credentials](#)

#### Windows Credentials

Windows credentials have been disabled by your system administrator.

#### Certificate-Based Credentials

Certificate-based credentials have been disabled by your system administrator.

#### Generic Credentials

[Add a generic credential](#)

165.225.76.32

Modified: 7/17/2023 (✓)

Key 165.225.76.32 in Internet or network address

Key your ST windows login username into User Name , your password into Password

Here you don't need to replace 'space' or 'special character' the credential manager will help you to transfer it automatically

### Type the website address and your credential information

Make sure that the user name and password that you type can be used to access the location.

Internet or network address:	<input type="text" value="165.225.76.32"/>
User name:	<input type="text" value="leo wu"/>
Password:	<input type="password" value="••••••••"/>

Then click `ok` to save it

## Case : Using Anaconda to manage the python environment (Recommend)

There is a problem when you choose Anaconda to manage your python environment

Because Anaconda has its own package manager, it will download the packages from their server.

For most time, you can download all the famous packages from their server by using the `conda` command, but you still need to install `pip`, in case they don't have the packages you want which always happen

But the different package manager would need to use different setting to connect to proxy server, it can't be avoided.

Please follow the procedure to set up the configuration.

- For Windows Credential Part

Please check `Windows Credential Mangers` in `Materials`

- For conda part please open your user folder ex: C:\Users\leo wu  
find a file named .condarc and open it with text editor (if it doesn't exist please create it by yourself)  
please copy below string into the text editor and save it

```
ssl_verify: true
channels:
  - defaults

proxy_servers:
  http: http://165.225.76.32:80
  https: http://165.225.76.32:80
```

- For pip part (Thanks **Michael TANG** for providing this useful method)  
please open your user folder ex: C:\Users\leo wu  
create a folder and name it ► pip  
enter the ► pip folder and create a file named pip.ini then open it  
Copy below strings into the text editor and save it

```
[global]
proxy=http://165.225.76.32
trusted-host = pypi.python.org
               files.pythonhosted.org
               pypi.org
```

But this setting will NOT let you download the packages from ST internal server, when you point the package source to ST

internal server

ST internal python package server :

[https://imgweb.gnb.st.com/python\\_packages/](https://imgweb.gnb.st.com/python_packages/)

If you want to install the package from ST internal server, I will suggest you download it and use ► `pip install` command to install the package

NOTICE :

Because ST will ask you change your password every 3 months, so this method can easily help you to change the password without modifying the proxy connection string in several places when you change the password, you can just open the Windows Credential Managers and modify your password, the proxy setting will take effect immediately

And now, you can open conda command line window and activate your python environment and download the packages you want, no matter you are using ► `conda` or ► `pip`, it should not have any issue

## Case : Using python execution file to install the python environment

- Open the command, activate the python environment, then check the Proxy connection strings in Materials  
For example, if your proxy connection strings are



```
http://leo%20wu:1234%21QWER%23@163.225.76.32:80
```

Then enter the following command into command line windows

```
SET HTTP_PROXY=http://leo%20wu:1234%21QWER%23@163.225.76
```

---

```
SET HTTPS_PROXY=http://leo%20wu:1234%21QWER%23@163.225.7
```

---

Then you should be able to use pip to download the packages

The only problem of this method is it would be very annoying when you open a new command line window, you need to enter it again.

Or you can add these parameter into system Environment Variables , but you need to have an administrator account

## Case : I don't want to know the details, just tell me what's the best solution and how to do !

Download Mini-Anaconda and install it : [Mini-Anaconda3](#)

Follow the Case : Using Anaconda to manage the python environment