Installing the Python Quant Stack

Step 1: Update the base environment

Run the following at the command line to update your base conda environment:

```
conda update -n base -c defaults conda -y
```

The command updates the base environment's conda package to the latest version using the defaults channel and automatically confirms the update without prompting the user.

Step 2: Create a virtual environment

After the update process is complete, create a virtual environment. A virtual environment is an “isolated” Python installation. These isolated installations can work alongside each other.

```
conda create -n my_quant_lab python=3.11 -y
```

The command creates a new Conda environment named `my_quant_lab` with Python version 3.11 and automatically confirms the creation without prompting the user.

Step 3: Activate your new Quant Lab

Once the Quant Lab is created, you need to activate it. Do so by running the following at the command line:

```
conda activate my_quant_lab
```

The command activates the Conda environment named `my_quant_lab`, making it the current working environment.

- conda: The package, dependency, and environment management system for Python.
- activate: The command to activate a specific Conda environment.
- my_quant_lab: The name of the environment to be activated, in this case, `my_quant_lab`.

Step 4: Install Jupyter Notebook

Once the Quant Lab is activated, install Jupyter Notebook by running the following command:

```
pip install jupyterlab
```

This command uses the pip package manager to install Jupyter Notebook.

Step 5: Install VectorBT

Next, install the VectorBT vector-based backtesting library:

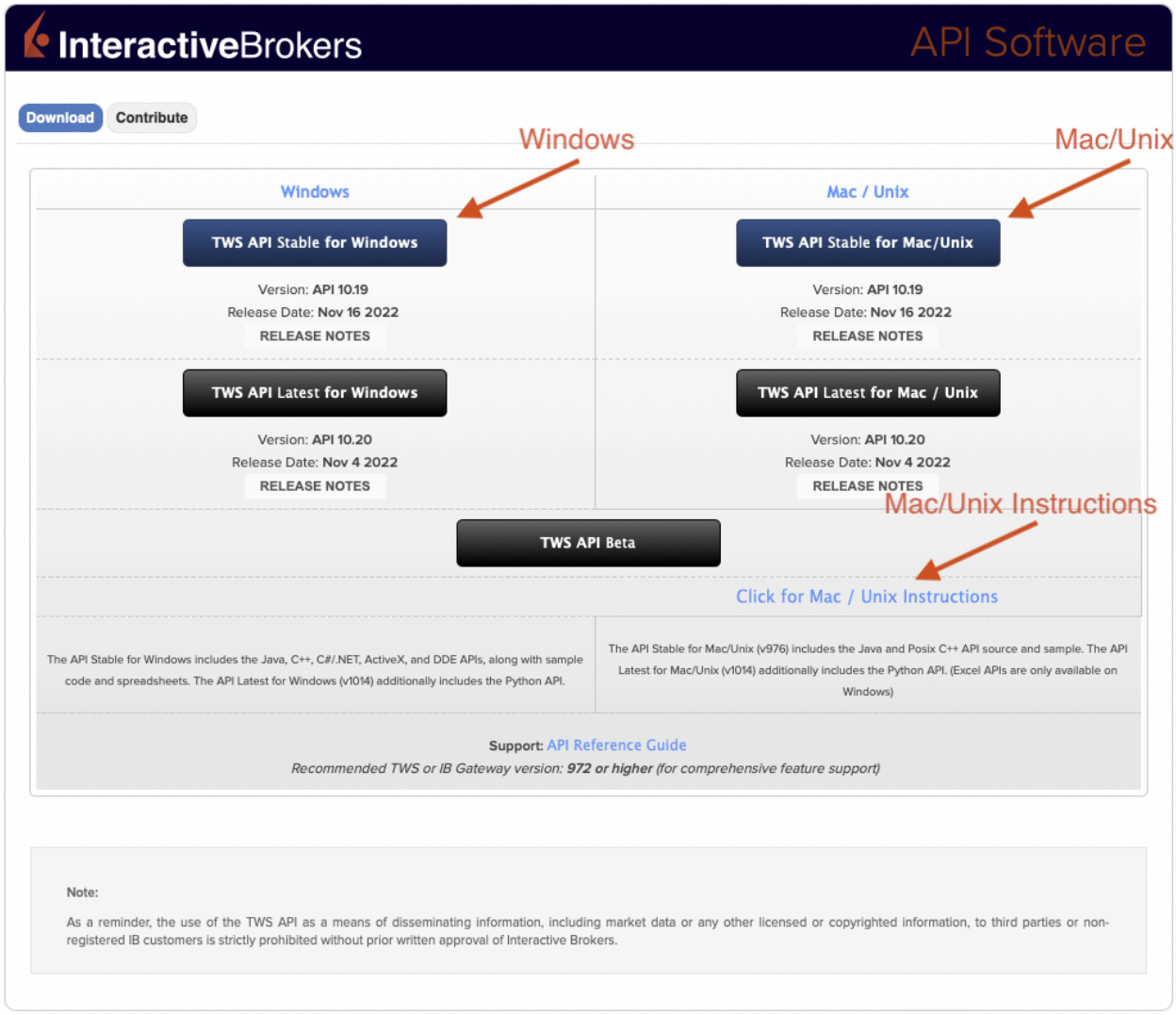
```
pip install vectorbt
```

Installing VectorBT will install the other members of the Python Quant Stack: pandas, NumPy, and many others.

Step 5: Install the Interactive Brokers API

Finally, you'll set up the Interactive Brokers Python API, which also requires some special handling. Note that to work with the Interactive Brokers API live, you need an IBKR Pro account (not IBKR Lite). You can use the free demo account if you don’t want (or can’t) set up an IB account. However, you cannot access market data from the free demo account. Only submit orders.

Download the Python API from the Interactive Brokers GitHub page.



Download the stable API version for your operating system. The version may be different than what's in the screenshot.

Windows

To install on Windows, run the MSI file you downloaded and follow the setup wizard. The wizard installs files on your computer, including the files you need to install the API.

Navigate to the folder specified during the installation using the command prompt loaded with your custom Quant Lab (usually **\TWS API\source\pythonclient**).

The command to get there looks *something* like this:

```
cd "C:\Users\{YOUR USER NAME}\TWS API\source\pythonclient"
```

The location depends on where the files were placed on your computer. Pay attention during installation!

Once you're in the folder, run the following command:

```
pip install .
```

Mac/Unix/Linux

It's a little trickier for Mac and Linux.

Navigate to the directory where the ZIP was downloaded using the Terminal loaded with your custom Quant Lab.

Unzip the installer like this:

```
unzip twsapi_macunix.N.M.zip -d $HOME/
```

> Important Note: You cannot unzip the file by double-clicking since it was compressed using Windows. You must unzip it from the command line.
>
> **Important Note:** Double-check the file name before running the command. The **N** and **M** above are placeholders. The filename will have numbers.

Then, navigate to the directory with the installation files.

```
cd ~/IBJts/source/pythonclient
```

Once you're in the folder, run the following command:

```
pip install .
```

Test the installation

Once the installation is complete, follow these steps to test it.

Type *python* at the Terminal window to enter Python:

```
python
```

Import the IB API to make sure it works:

```
>>> import ibapi
```

Nothing should happen, which means the API was correctly imported! Contact the community if you get an error about the module not being found.

Quit Python:

```
>>> exit()
```

After everything is working, it is safe to remove the Zip file you downloaded and the directories that you unzipped.

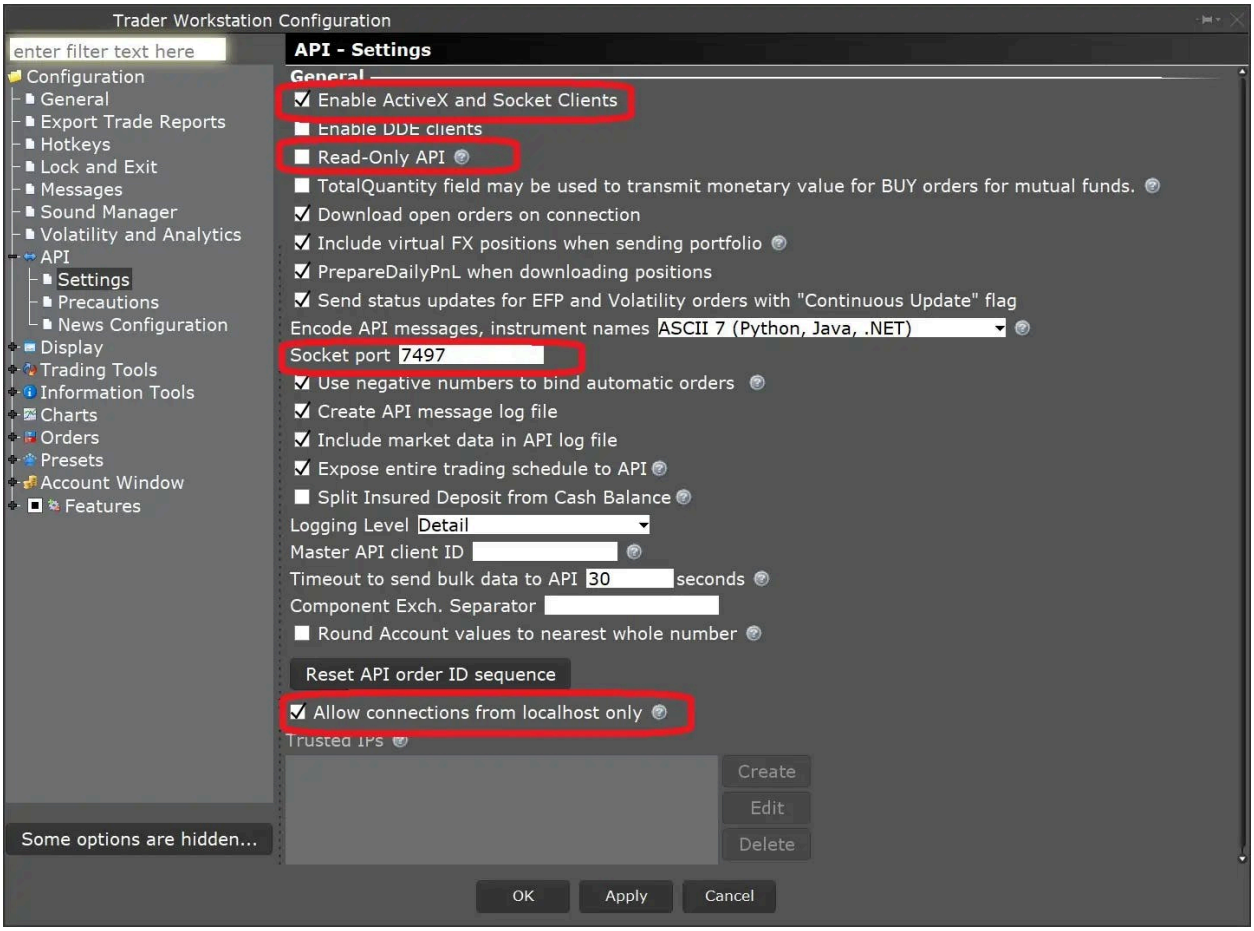
Now, install Interactive Brokers Trader Workstation (TWS), IB's trading app. It's great to use if you want to see what happens when you send trade orders with Python.

You can download TWS for your computer here. It's available for Windows, Mac, and Linux.

Once installed, start TWS.

If you have an account, log in. If not, you can use the Demo account option on the login screen.

You need to change some settings. Navigate to **Trader Workstation Configuration** under **Edit** → **Global Configuration** → **API** → **Settings**. You should have a screen that looks like this:



Make sure to check ***Enable ActiveX and Socket Clients***. Check ***Read-Only API*** if you want extra protection against sending orders to IB. Lastly, check ***Allow connections from localhost only*** for security.

Make a note of the ***Socket port,*** which you'll need to connect through Python. For your paper trading account, the port defaults to 7497.