

How to connect WiFi using Python

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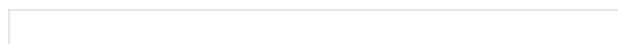
Seeing a computer without an active internet connection today is next to impossible. The Internet has been of the utmost importance in the 21st Century. There are multiple ways one can connect their machine to the Internet. The first being, the traditional cables, i.e. the Ethernet, and the other being, the modern Wireless Fidelity Systems or Wi-Fi as we all know it. Wi-Fi has made life easier and faster for all of us. With a touch of the thumb or a click of the mouse, we get connected to a limitless ocean of information and resources almost instantaneously. In this article, we will accomplish the same task with a High-Level modern programming language, like Python

Connecting to a Known WiFi Network

Here we are going to connect to a previously connected WiFi network.

Approach:

The approach of the program will be simple:



- Import the necessary *libraries*.



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Got It !

- *Selecting* the known Wi-Fi you want to connect to.
- Wait for it to *Connect successfully*.

Now, let's get coding. We will make use of a couple of *Windows Command Prompt* commands to access the list of available Wi-Fi networks and to connect to a *previously connected* network. But, how do we write and execute Window Command Prompt commands in a Python script? Umm...

The *os* library helps us communicate with the operating system directly through python with several methods like *path()*, *getcwd()*, *system()*, etc. We can even run *CMD* commands using *os* functions.

Implementation:



Python3

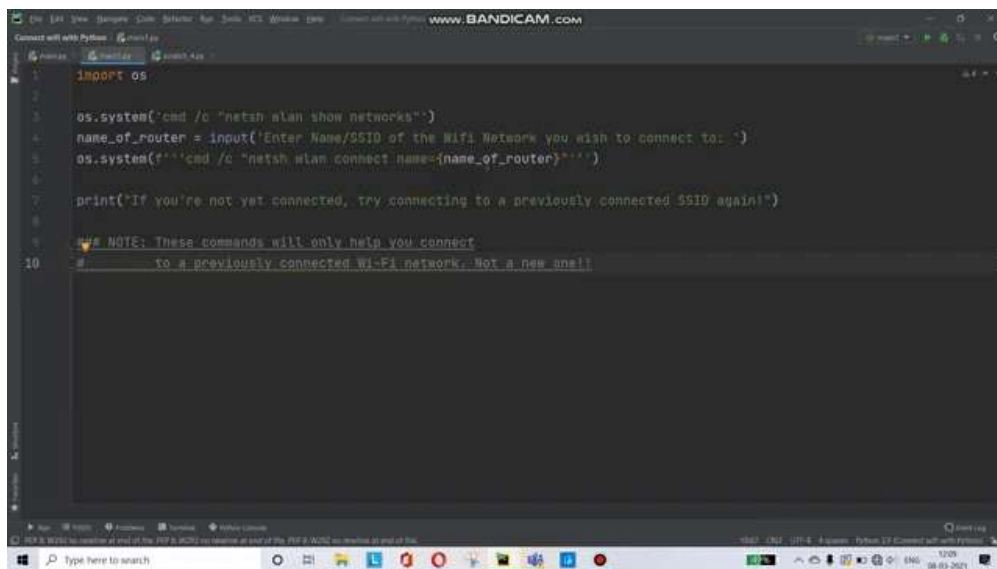
```
# import module
import os

# scan available Wifi networks
os.system('cmd /c "netsh wlan show networks"')

# input Wifi name
name_of_router = input('Enter Name/SSID of the Wifi Network you wish to connect

# connect to the given wifi network
os.system(f'''cmd /c "netsh wlan connect name={name_of_router}""''')

print("If you're not yet connected, try connecting to a previously connected SS
```



```

1 import os
2
3 os.system('cmd /c "netsh wlan show networks"')
4 name_of_router = input('Enter Name/SSID of the Wifi Network you wish to connect to: ')
5 os.system('cmd /c "netsh wlan connect name={name_of_router}"')
6
7 print('If you're not yet connected, try connecting to a previously connected SSID again!')
8
9 NOTE: These commands will only help you connect
10 to a previously connected Wi-Fi network. Not a new one!

```

Explanation:

Here, first, we fetch the `os` library using the *import* keyword. Then, we use the `system()` method from the *os* library which helps us run the `cmd` command

```
'cmd /c "netsh wlan show networks"'
```

The above command *scans all the available SSIDs* and displays them as output along with their Infrastructure, Authentication, and Encryption type. We proceed by taking a string input of the SSID, the user wishes to connect to and save them in the variable named, *name_of_router*.

This string variable is then substituted in the place of another `cmd` command where we are supposed to enter the name of the SSID.



We will now be successfully connected to the particular SSID.

Connecting to a New Wi-Fi Network

Now, connecting to a new Wi-Fi involves a couple of more steps. To connect to a new network, we must first add this new Wi-Fi Network profile to our system using an .XML file. This makes that Wi-Fi network, a known SSID, and we can now successfully connect to it using the above steps.

Approach:

- Step 1: Import the **os** library
- Step 2: Set up the new Wi-Fi Network's ***XML configuration***
- Step 3: ***Select*** the Wi-Fi Network
- Step 4: Add this ***profile*** to your system
- Step 5: ***Connect*** to the Wi-Fi network

Implementation:

Python3

```
# import module
import os

# function to establish a new connection
def createNewConnection(name, SSID, password):
    config = """<?xml version="1.0"?>
<WLANProfile xmlns="http://www.microsoft.com/networking/WLAN/profile/v1">
  <name>"""+name+"""/>
  <SSIDConfig>
    <SSID>
      <name>"""+SSID+"""/>
    </SSID>
  </SSIDConfig>
  <connectionType>ESS</connectionType>
  <connectionMode>auto</connectionMode>
  <MSM>
    <security>
      <authEncryption>
        <authentication>WPA2PSK</authentication>
        <encryption>AES</encryption>
        <useOneX>>false</useOneX>
      </authEncryption>
```

```

        <keyMaterial>"""+password+"""/>keyMaterial>
    </sharedKey>
</security>
</MSM>
</WLANProfile>""""
    command = "netsh wlan add profile filename=\""+name+".xml\""+ " interface=Wi
with open(name+".xml", 'w') as file:
    file.write(config)
os.system(command)

# function to connect to a network
def connect(name, SSID):
    command = "netsh wlan connect name=\""+name+"\" ssid=\""+SSID+"\" interface
os.system(command)

# function to display available Wifi networks
def displayAvailableNetworks():
    command = "netsh wlan show networks interface=Wi-Fi"
    os.system(command)

# display available networks
displayAvailableNetworks()

# input wifi name and password
name = input("Name of Wi-Fi: ")
password = input("Password: ")

# establish new connection
def createNewConnection(name, SSID, password):

```

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```

# connect to the wifi network
connect(name, name)
print("If you aren't connected to this network, try connecting with the correct

```

Output:

```

1 import os
2
3 def createNewConnection(name, SSID, password):
4     config = """<?xml version="1.0"?>
5     <WLANProfile xmlns="http://www.microsoft.com/networking/WLAN/profile/v1">
6         <name>"""+name+"""/>name>
7         <SSIDConfig>
8             <SSID>
9                 <name>"""+SSID+"""/>name>
10            </SSID>
11        </SSIDConfig>
12        <connectionType>ESS</connectionType>
13        <connectionMode>auto</connectionMode>
14        <MSM>
15            <security>
16                <authEncryption>
17                    <authentication>WPA2PSK</authentication>
18                    <encryption>AES</encryption>

```

Explanation:

First, we define the ***createNewConnection*** function which takes the parameters name, SSID, and password, which are all strings that we used to complete to config variable. The config variable is a string that helps us define the ***XML*** configuration for a new Wi-Fi Network.

Then, we take the input from the user for the ***SSID name and Password***. They are then fed into XML code which is then added as a profile using the following lines of code:

```
command = "netsh wlan add profile filename=\""+name+".xml\""+  
interface=Wi-Fi"  
    with open(name+".xml", 'w') as file:  
        file.write(config)  
    os.system(command)
```

We can now connect to the Wi-Fi using the same commands we used earlier in this article and connect to the network as if it was a known one.

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Last Updated : 23 Aug, 2021

9

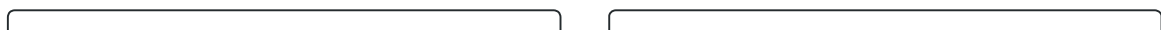
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