Step-by-Step Installing ANTLR4 on Windows via antlr4-tools (Python-based installation)

The easiest way to get started with ANTLR in Windows is by using Python. This method avoids the need to manually installing Java or set up the CLASSPATH.

1- Make sure you have Python3 installed.
2- Open a terminal or command prompt, and run the following command to install antlr-tools:

- **pip install antlr4-tools**   // **(includes ANTLR and automatically installs Java if needed)**

   In my case as I did this command before, I got this:

   ```
   Requirement already satisfied: antlr4-tools in
   c:\users\haan7p\appdata\local\packages\pythonsoftwarefoundation.p
   ython.3.11_qbz5n2kfra8p0\localcache\local-packages\python311\site-
   packages (0.2.1)
   Requirement already satisfied: install-jdk in
   c:\users\haan7p\appdata\local\packages\pythonsoftwarefoundation.p
   ython.3.11_qbz5n2kfra8p0\localcache\local-packages\python311\site-
   packages (from antlr4-tools) (1.1.0)|
   ```

3- Run the ANTLR command in the terminal
   - antlr4

   on the first time I got:

   ```
   'antlr4' is not recognized as an internal or external command,
   operable program or batch file.
   ```

   This means that the Python Scripts directory is not in your system's PATH.

   In this case I needed to **add the directory** where the Python scripts are installed **to my system's PATH**.

   - Locate the Scripts Directory: In my case I have python installed in this Directory:

      C:\Users\haan7p\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.11_qbz5n2kfra8p0\LocalCache\local-packages\Python311

      - The **Scripts** folder should be located inside this directory, (The antlr4 should be in the **Scripts** subfolder)

      To find out where Python is installed on your system run:

      python -m site --user-base

      I got:
      ```
      C:\Users\haan7p\AppData\Local\Packages\PythonSoftwareFoundation
      .Python.3.11_qbz5n2kfra8p0\LocalCache\local-packages
      ```

Now, you need to add the Python **Scripts** folder to your system's PATH by modifying the PATH variable for your user account: **In my case I did:**

setx PATH
"%PATH%;C:\Users\haan7p\AppData\Local\Packages\PythonSoftwareFoundation.Python.3.11_qbz5n2kfr a8p0\LocalCache\local-packages\Python311\Scripts"

```
C:\Users\haan7p>setx PATH
"%PATH%;C:\Users\haan7p\AppData\Local\Packages\PythonSoftwareF
oundation.Python.3.11_qbz5n2kfra8p0\LocalCache\local-
packages\Python311\Scripts"

SUCCESS: Specified value was saved.
```

Please notice that You need to replace this part(C:\Users\...\Scripts) with your path to the Scripts directory in your system.

Finally**, Close the current Command Prompt** and **open a new one** to **apply the changes**

Now try running the antlr4 command again (step 3):

antlr4

```
C:\Users\haan7p>antlr4
Downloading antlr4-4.13.2-complete.jar
ANTLR tool needs Java to run; install Java JRE 11 yes/no (default yes)?
y
Installed Java in C:\Users\haan7p\.jre\jdk-11.0.24+8-jre; remove that
dir to uninstall
ANTLR Parser Generator  Version 4.13.2
 -o ___          specify output directory where all output is generated
 -lib ___        specify location of grammars, tokens files
```

This will prompt you to install Java 11 if it's not already installed. If prompted, allow the automatic installation of Java.

Once this is set, you can use the antlr4 and antlr4-parse commands directly from your terminal.

4- TO use the generated Python code from your .g4 files , you will need to install the ANTLR4 Python runtime:

o   **pip install antlr4-python3-runtime**