

## Assignment 3

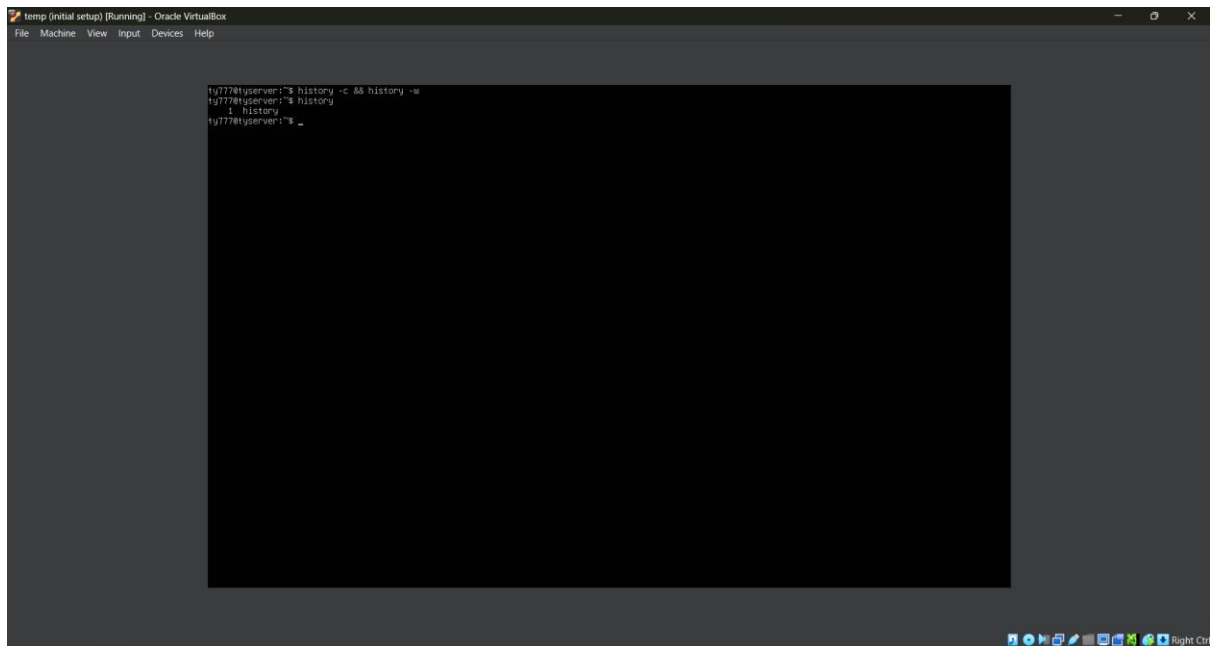
### Task 1

**history -c:** Clears the history in the current shell session.

**history -w:** Overwrites the history file (`~/.bash_history`) with the empty history, ensuring the deletion persists.

**Note:** This only affects the current user's history. Other users or active sessions may retain their own histories.

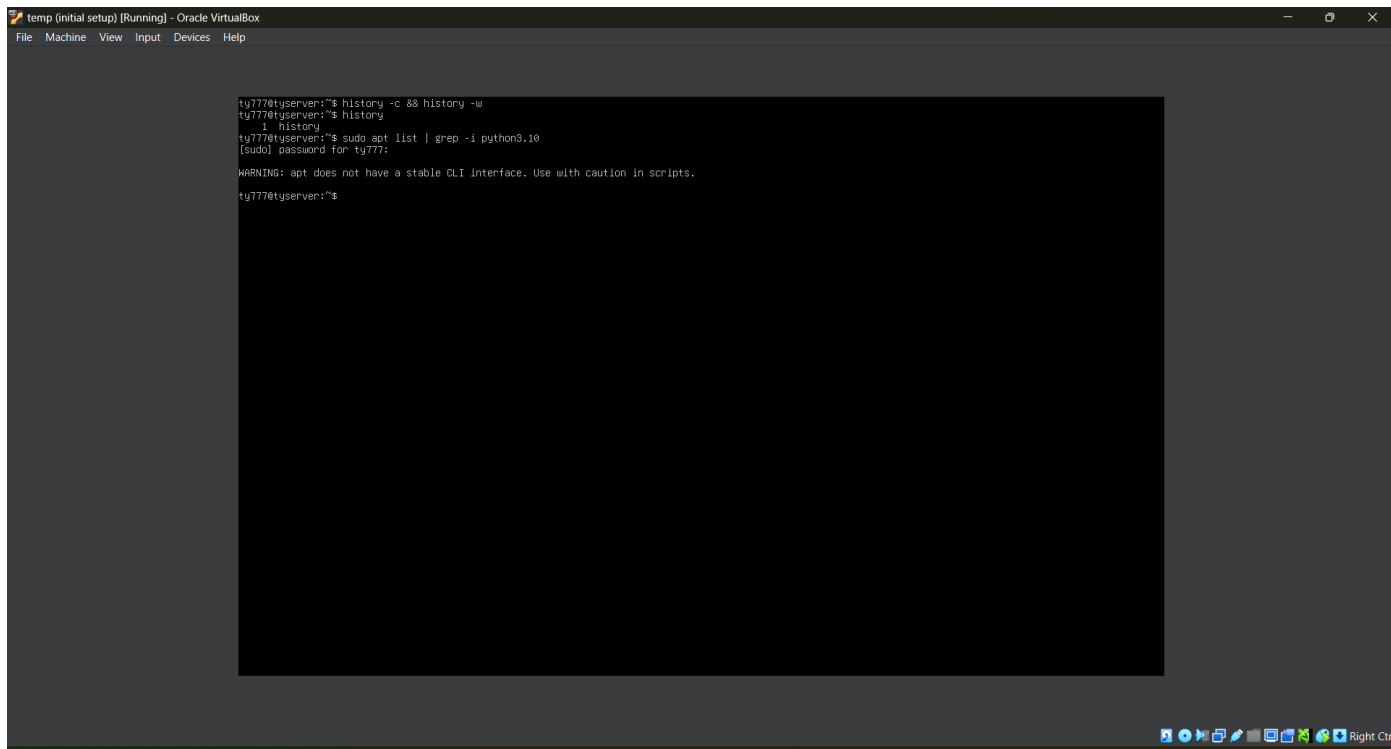
**history:** Displays the command history for the current session.



The screenshot shows a terminal window titled "temp (initial setup) [Running] - Oracle VM VirtualBox". The terminal output is as follows:

```
ty7778@tyserver:~$ history -c && history -w
ty7778@tyserver:~$ history
1 history
ty7778@tyserver:~$ _
```

The terminal window has a menu bar with "File", "Machine", "View", "Input", "Devices", and "Help". The bottom status bar shows various system icons and the text "Right Click".



```
temp (initial setup) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

ty777@tyserver:~$ history -c && history -w
ty777@tyserver:~$ history
1 history
ty777@tyserver:~$ sudo apt list | grep -i python3.10
[sudo] password for ty777:

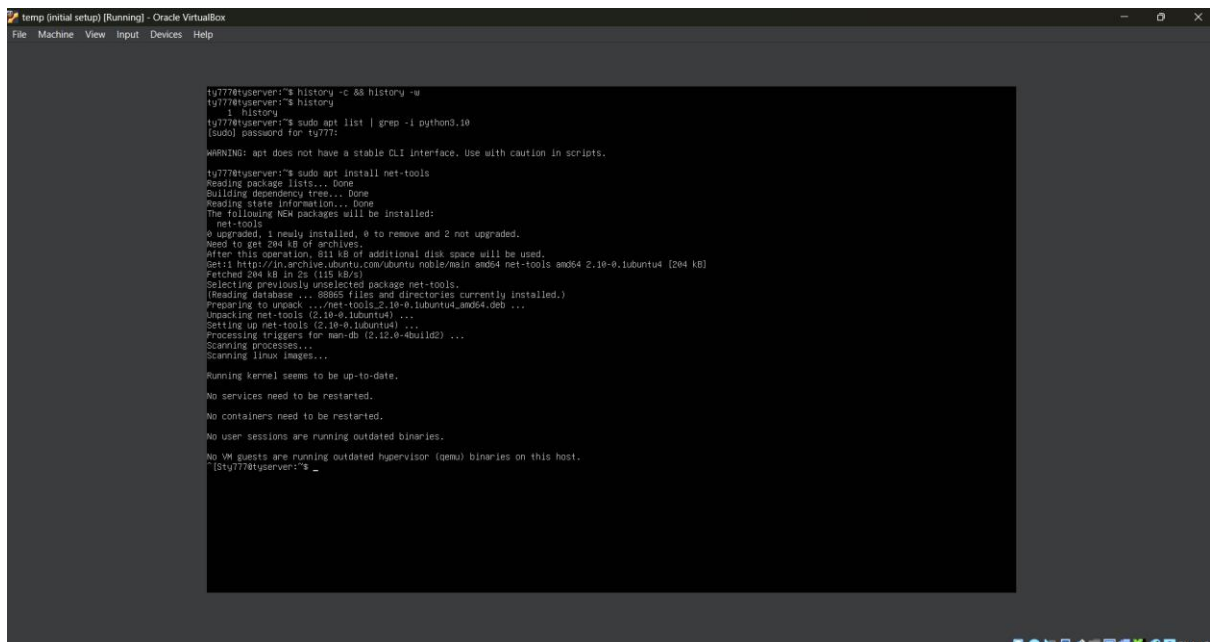
WARNING: apt does not have a stable CLI interface. Use with caution in scripts.

ty777@tyserver:~$
```

**sudo apt list | grep -i python3.10:** Checks if the Python 3.10 package is installed via apt

**sudo apt list:** Lists all packages installed via APT.

**grep -i python3.10:** Case-insensitive search for "python3.10".



```
temp (initial setup) [Running] - Oracle VM VirtualBox
File Machine View Input Devices Help

ty777@tyserver:~$ history -c && history -w
ty777@tyserver:~$ history
1 history
ty777@tyserver:~$ sudo apt list | grep -i python3.10
[sudo] password for ty777:

WARNING: apt does not have a stable CLI interface. Use with caution in scripts.

ty777@tyserver:~$ sudo apt install net-tools
Reading package lists... Done
Building dependency tree... Done
Reading state information... Done
The following NEW packages will be installed:
net-tools
0 upgraded, 1 newly installed, 0 to remove and 2 not upgraded.
Need to get 204 kB of archives.
After this operation, 811 kB of additional disk space will be used.
Get:1 http://in.archive.ubuntu.com/ubuntu noble/main amd64 net-tools amd64 2.10-0.1ubuntu4 [204 kB]
Fetched 204 kB in 2s (115 kB/s)
Selecting previously unselected package net-tools.
(Reading database ... 58905 files and directories currently installed.)
Preparing to unpack .../net-tools.2.10-0.1ubuntu4_amd64.deb ...
Unpacking net-tools (2.10-0.1ubuntu4) ...
Setting up net-tools (2.10-0.1ubuntu4) ...
Processing triggers for man-db (2.12.0-4build2) ...
Scanning processes...
Scanning linux images...

Running kernel seems to be up-to-date.

No services need to be restarted.

No containers need to be restarted.

No user sessions are running outdated binaries.

No VM guests are running outdated hypervisor (qemu) binaries on this host.
ty777@tyserver:~$
```

Installing net-tools

```
No containers need to be restarted.
No user sessions are running outdated binaries.
No VM guests are running outdated hypervisor (qemu) binaries on this host.
[Sty777@tyserver:~]$ python3 -V
Python 3.12.3
ty777@tyserver:~$ _
```

Shows the installed python versions as you can see python 3.10 is not installed

## Downloading and Installing Python 3.10 via Tarball

1. Create a build directory and cd into it

```
ty777@tyserver: ~  
ty777@tyserver:~$ mkdir -p ~/python_build && cd ~/python_build
```

Wget to download the tar file for python

And Unzipping the tar file

```
ty777@tyserver: ~/python_build  
ty777@tyserver:~/python_build$ wget https://www.python.org/ftp/python/3.10.0/Python-3.10.0.tgz  
--2025-01-26 13:19:17-- https://www.python.org/ftp/python/3.10.0/Python-3.10.0.tgz  
Resolving www.python.org (www.python.org)... 151.101.192.223, 151.101.64.223, 151.101.128.223, ...  
Connecting to www.python.org (www.python.org)|151.101.192.223|:443... connected.  
HTTP request sent, awaiting response... 200 OK  
Length: 25007016 (24M) [application/octet-stream]  
Saving to: 'Python-3.10.0.tgz'  
  
Python-3.10.0.tgz      100%[=====] 23.85M  6.18MB/s   in 4.3s  
2025-01-26 13:19:21 (5.56 MB/s) - 'Python-3.10.0.tgz' saved [25007016/25007016]  
  
ty777@tyserver:~/python_build$ tar -xzf Python-3.10.0.tgz  
ty777@tyserver:~/python_build$
```

Prepares the build environment by checking system dependencies, setting compiler flags, and generating a Makefile

- `--prefix=<path>`: Specifies the installation directory (e.g., `$HOME/.local/sqlite`).
- `--enable-optimizations`: Optimizes the build (used for Python)

```
ty777@tyserver:~/python_build$ tar -xzf Python-3.10.0.tgz
ty777@tyserver:~/python_build$ cd Python-3.10.0
ty777@tyserver:~/python_build/Python-3.10.0$ ./configure --enable-optimizations --prefix=$HOME/.local/python-3.10
```

```
checking for openssl/ssl.h in /usr/ssl... no
checking for openssl/ssl.h in /usr/pkg... no
checking for openssl/ssl.h in /usr/local... no
checking for openssl/ssl.h in /usr... no
checking whether compiling and linking against OpenSSL works... no
checking for --with-openssl-rpath...
checking for --with-ssl-default-suites... python
checking for --with-builtin-hashlib-hashes... md5,sha1,sha256,sha512,sha3,blake2
checking for --with-experimental-isolated-subinterpreters... no
checking for --with-static-libpython... yes
checking for --disable-test-modules... no
configure: creating ./config.status
config.status: creating Makefile.pre
config.status: creating Misc/python.pc
config.status: creating Misc/python-embed.pc
config.status: creating Misc/python-config.sh
config.status: creating Modules/ld_so_aix
config.status: creating pyconfig.h
creating Modules/Setup.local
creating Makefile
ty777@tyserver:~/python_build/Python-3.10.0$ |
```

## make

Compiles the source code into binaries using the rules defined in the Makefile.

Note: `make -j$(nproc)`: Parallel compilation for faster builds.

## make install

Installs the compiled binaries, libraries, and headers to the directory specified in

--prefix.

```
ty777@tyserver:~/python_build/Python-3.10.0$ make -j $(nproc) && make install
Running code to generate profile data (this can take a while):
# First, we need to create a clean build with profile generation
# enabled.
make profile-gen-stamp
make[1]: Entering directory '/home/ty777/python_build/Python-3.10.0'
make clean
make[2]: Entering directory '/home/ty777/python_build/Python-3.10.0'
find . -depth -name '__pycache__' -exec rm -rf {} ';'
find . -name '*.py[co]' -exec rm -f {} ';'
find . -name '*.o' -exec rm -f {} ';'
find . -name '*.so' -exec rm -f {} ';'
find . -name '*.so.[0-9]*.[0-9]*' -exec rm -f {} ';'
find . -name '*.lst' -exec rm -f {} ';'
find build -name 'fficonfig.h' -exec rm -f {} ';' || true
find: 'build': No such file or directory
find build -name '*.py' -exec rm -f {} ';' || true
find: 'build': No such file or directory
```

## Error because zlib is not installed

```
ty777@tyserver: ~/python_bu  +  v
File <frozen zipimport>, line 570, in _get_decompress_func
ModuleNotFoundError: No module named 'zlib'

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File <frozen zipimport>, line 618, in _get_data
  File <frozen zipimport>, line 573, in _get_decompress_func
zipimport.ZipImportError: can't decompress data; zlib not available

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File <string>, line 6, in <module>
  File "/home/ty777/python_build/Python-3.10.0/lib/runpy.py", line 285, in run_module
    mod_name, mod_spec, code = _get_module_details(mod_name)
  File "/home/ty777/python_build/Python-3.10.0/lib/runpy.py", line 146, in _get_module_details
    return _get_module_details(pkg_main_name, error)
  File "/home/ty777/python_build/Python-3.10.0/lib/runpy.py", line 110, in _get_module_details
    __import__(pkg_name)
  File <frozen zipimport>, line 196, in get_code
  File <frozen zipimport>, line 752, in _get_module_code
  File <frozen zipimport>, line 620, in _get_data
zipimport.ZipImportError: can't decompress data; zlib not available

Traceback (most recent call last):
  File "/home/ty777/python_build/Python-3.10.0/lib/runpy.py", line 196, in _run_module_as_main
    return _run_code(code, main_globals, None)
  File "/home/ty777/python_build/Python-3.10.0/lib/runpy.py", line 86, in _run_code
    exec(code, run_globals)
  File "/home/ty777/python_build/Python-3.10.0/lib/ensurepip/_main_.py", line 5, in <module>
    sys.exit(ensurepip._main())
  File "/home/ty777/python_build/Python-3.10.0/lib/ensurepip/_init_.py", line 277, in _main
    return _bootstrap()
  File "/home/ty777/python_build/Python-3.10.0/lib/ensurepip/_init_.py", line 193, in _bootstrap
    return _run_pip(*args, *PACKAGE_NAMES, additional_paths)
  File "/home/ty777/python_build/Python-3.10.0/lib/ensurepip/_init_.py", line 93, in _run_pip
    return subprocess.run([sys.executable, "-w", 'ignore:DeprecationWarning',
  File "/home/ty777/python_build/Python-3.10.0/lib/subprocess.py", line 524, in run
    raise CalledProcessError(retcode, process.args)
subprocess.CalledProcessError: Command '['/home/ty777/python_build/Python-3.10.0/python', '-W', 'ignore:DeprecationWarning', '-c', 'import runpy; import sys; sys.path = ["/tmp/tmpahashdr/ensurepip-3.1.0-py3-none-any.whl", "/tmp/tmpahashdr/pip-21.2.3-py3-none-any.whl"] + sys.path; sys.argv[1:] = ["install", "--no-cache-dir", "--no-index", "--find-links", "/tmp/tmpahashdr", "--root", "/", "--upgrade", "setuptools", "pip"]' returned non-zero exit status 1.
make: *** [Makefile:128: install] Error 1

ty777@tyserver:~/python_build/Python-3.10.0$ |
```

Exporting PATH so that when we call python3.10 it runs python instead of giving the entire path. We put this in ~/.bashrc because we don't want this change to be temporary. To apply changes we **source** the file.

```

return _bootstrap
File "/home/ty777/python_build/Python-3.10.0/Lib/ensurepip/_init_.py", line 193, in _bootstrap
    return _run_pip(*args, *PACKAGE_NAMES], additional_paths)
File "/home/ty777/python_build/Python-3.10.0/Lib/ensurepip/_init_.py", line 93, in _run_pip
    return subprocess.run([sys.executable, '-W', 'ignore::DeprecationWarning',
File "/home/ty777/python_build/Python-3.10.0/Lib/subprocess.py", line 524, in run
    raise CalledProcessError(retcode, process.args,
subprocess.CalledProcessError: Command '['/home/ty777/python_build/Python-3.10.0/python', '-W', 'ignore::DeprecationWarning', '-c', '\nimport runpy\nimport sys\nsys.path = [\
l\\', '\\tmp\\tmpahoashdr\\pip-21.2.3-py3-none-any.whl\\'] + sys.path\nsys.argv[1:] = ['install\\', '\\--no-cache-dir\\', '\\--no-index\\', '\\--find-links\\', '\\tmp\\tmpahoashdr\\', '\\
ip\\']\nrunpy.run_module("pip", run_name="__main__", alter_sys=True)\n']' returned non-zero exit status 1.
make: *** [Makefile:1281: install] Error 1
ty777@tyserver:~/python_build/Python-3.10.0$ echo 'export PATH="$HOME/.local/python-3.10/bin:$PATH"' >> ~/.bashrc
ty777@tyserver:~/python_build/Python-3.10.0$ source ~/.bashrc
ty777@tyserver:~/python_build/Python-3.10.0$ |

```

```

ip\\')\nrunpy.run_module("pip", run_name="__main__", alter_sys=True)\n']' returned non-zero exit status 1.
make: *** [Makefile:1281: install] Error 1
ty777@tyserver:~/python_build/Python-3.10.0$ echo 'export PATH="$HOME/.local/python-3.10/bin:$PATH"' >> ~/.bashrc
ty777@tyserver:~/python_build/Python-3.10.0$ source ~/.bashrc
ty777@tyserver:~/python_build/Python-3.10.0$ python3.10 --version
Python 3.10.0
ty777@tyserver:~/python_build/Python-3.10.0$ pip
Command 'pip' not found, but can be installed with:
sudo apt install python3-pip
ty777@tyserver:~/python_build/Python-3.10.0$ pip3.10
Command 'pip3.10' not found, did you mean:
  command 'pip3.11' from deb python3-pip (24.0+dfsg-1ubuntu1.1)
  command 'pip3.12' from deb python3-pip (24.0+dfsg-1ubuntu1.1)
Try: sudo apt install <deb name>
ty777@tyserver:~/python_build/Python-3.10.0$ python3.10 -m pip --version
/home/ty777/.local/python-3.10/bin/python3.10: No module named pip
ty777@tyserver:~/python_build/Python-3.10.0$ |

```

Python seems to work but pip dosent

```

/home/ty777/.local/python-3.10/bin/python3.10: No module named pip
ty777@tyserver:~/python_build/Python-3.10.0$ curl https://bootstrap.pypa.io/get-pip.py -o get-pip.py
  % Total    % Received % Xferd  Average Speed   Time    Time     Time  Current
                                 Dload  Upload    Total   Spent    Left    Speed
100 2222k  100 2222k    0     0 1430k    0  0:00:01  0:00:01 --:--:-- 1430k
ty777@tyserver:~/python_build/Python-3.10.0$ |

```

Trying to install pip, but zlib needed here also

```

ty777@tyserver:~/python_build/Python-3.10.0$ python3.10 get-pip.py --user
Traceback (most recent call last):
  File "<frozen zipimport>", line 570, in _get_decompress_func
ModuleNotFoundError: No module named 'zlib'

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "<frozen zipimport>", line 618, in _get_data
  File "<frozen zipimport>", line 573, in _get_decompress_func
zipimport.ZipImportError: can't decompress data; zlib not available

During handling of the above exception, another exception occurred:

Traceback (most recent call last):
  File "/home/ty777/python_build/Python-3.10.0/get-pip.py", line 28535, in <module>
    main()
  File "/home/ty777/python_build/Python-3.10.0/get-pip.py", line 137, in main
    bootstrap(tmpdir=tmpdir)
  File "/home/ty777/python_build/Python-3.10.0/get-pip.py", line 113, in bootstrap
    monkeypatch_for_cert(tmpdir)
  File "/home/ty777/python_build/Python-3.10.0/get-pip.py", line 94, in monkeypatch_for_cert
    from pip._internal.commands.install import InstallCommand
  File "<frozen zipimport>", line 196, in get_code
  File "<frozen zipimport>", line 752, in _get_module_code
  File "<frozen zipimport>", line 620, in _get_data
zipimport.ZipImportError: can't decompress data; zlib not available
ty777@tyserver:~/python_build/Python-3.10.0$ |

```

So we try to build zlib and then rebuild python with zlib

We make a dir to build zlid and cd into it.

Wget the zip/tar file for zlib

```
zipimport.ZipImportError: can't decompress data; zlib not available
ty777@tyserver:~/python_build/Python-3.10.0$ mkdir -p ~/zlib_build && cd ~/zlib_build
ty777@tyserver:~/zlib_build$ wget https://zlib.net/zlib-1.2.13.tar.gz
--2025-01-26 13:38:31-- https://zlib.net/zlib-1.2.13.tar.gz
Resolving zlib.net (zlib.net)... 85.187.148.2
Connecting to zlib.net (zlib.net)|85.187.148.2|:443... connected.
HTTP request sent, awaiting response... 404 Not Found
2025-01-26 13:38:33 ERROR 404: Not Found.

ty777@tyserver:~/zlib_build$ wget http://www.zlib.net/fossils/zlib-1.2.13.tar.gz
URL transformed to HTTPS due to an HSTS policy
--2025-01-26 13:41:35-- https://www.zlib.net/fossils/zlib-1.2.13.tar.gz
Resolving www.zlib.net (www.zlib.net)... 85.187.148.2
Connecting to www.zlib.net (www.zlib.net)|85.187.148.2|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 1497445 (1.4M) [application/x-gzip]
Saving to: 'zlib-1.2.13.tar.gz'

zlib-1.2.13.tar.gz                               100%[=====]
2025-01-26 13:41:39 (654 KB/s) - 'zlib-1.2.13.tar.gz' saved [1497445/1497445]

ty777@tyserver:~/zlib_build$ ls -l zlib-1.2.13.tar.gz
-rw-rw-r-- 1 ty777 ty777 1497445 Oct 13  2022 zlib-1.2.13.tar.gz
ty777@tyserver:~/zlib_build$ |
```

Extracting the zip file and cd into the zlib dir

## Running

### ./configure

Prepares the build environment by checking system dependencies, setting compiler flags, and generating a Makefile.

- `--prefix=<path>`: Specifies the installation directory (e.g., `$HOME/.local/sqlite`).

```
2025-01-26 13:41:39 (654 KB/s) - 'zlib-1.2.13.tar.gz' saved [1497445/1497445]

ty777@tyserver:~/zlib_build$ ls -l zlib-1.2.13.tar.gz
-rw-rw-r-- 1 ty777 ty777 1497445 Oct 13  2022 zlib-1.2.13.tar.gz
ty777@tyserver:~/zlib_build$ tar -xzf zlib-1.2.13.tar.gz
ty777@tyserver:~/zlib_build$ cd zlib-1.2.13
ty777@tyserver:~/zlib_build/zlib-1.2.13$ ./configure --prefix=$HOME/.local/zlib
Checking for gcc...
Checking for shared library support...
Building shared library libz.so.1.2.13 with gcc.
Checking for size_t... Yes.
Checking for off64_t... Yes.
Checking for fseeko... Yes.
Checking for strerror... Yes.
Checking for unistd.h... Yes.
Checking for stdarg.h... Yes.
Checking whether to use vs[n]printf() or s[n]printf()... using vs[n]printf().
Checking for vsnprintf() in stdio.h... Yes.
Checking for return value of vsnprintf()... Yes.
Checking for attribute(visibility) support... Yes.
ty777@tyserver:~/zlib_build/zlib-1.2.13$ |
```

## make

Compiles the source code into binaries using the rules defined in the Makefile.

- `-j$(nproc)`: Parallel compilation for faster builds.

## make install

Installs the compiled binaries, libraries, and headers to the directory specified in

`--prefix`

```

Checking for return value of vsnprintf(...) Yes.
Checking for attribute(visibility) support... Yes.
ty777@tyserver:~/zlib_build/zlib-1.2.13$ make && make install
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -I. -c -o example.o test/example.c
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -c -o adler32.o adler32.c
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -c -o crc32.o crc32.c
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -c -o deflate.o deflate.c
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -c -o infback.o infback.c
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -c -o inffast.o inffast.c
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -c -o inflate.o inflate.c
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -c -o inftrees.o inftrees.c
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -c -o trees.o trees.c
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -c -o zutil.o zutil.c
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -c -o compress.o compress.c
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -c -o uncompress.o uncompress.c
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -c -o gzclose.o gzclose.c
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -c -o gzlib.o gzlib.c
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -c -o gzread.o gzread.c
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -c -o gzwrite.o gzwrite.c

```

```
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -o example example.o -L. libz.a
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -I. -c -o minigzip.o test/minigzip.c
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -o minigzip minigzip.o -L. libz.a
gcc -O3 -FPIC -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -DPIC -c -o objs/adler32.o adler32.c
gcc -O3 -FPIC -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -DPIC -c -o objs/crc32.o crc32.c
gcc -O3 -FPIC -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -DPIC -c -o objs/deflate.o deflate.c
gcc -O3 -FPIC -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -DPIC -c -o objs/inffback.o inffback.c
gcc -O3 -FPIC -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -DPIC -c -o objs/inffast.o inffast.c
gcc -O3 -FPIC -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -DPIC -c -o objs/inflate.o inflate.c
gcc -O3 -FPIC -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -DPIC -c -o objs/inftrees.o inftrees.c
gcc -O3 -FPIC -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -DPIC -c -o objs/trees.o trees.c
gcc -O3 -FPIC -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -DPIC -c -o objs/zutil.o zutil.c
gcc -O3 -FPIC -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -DPIC -c -o objs/compress.o compress.c
gcc -O3 -FPIC -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -DPIC -c -o objs/uncompr.o uncompr.c
gcc -O3 -FPIC -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -DPIC -c -o objs/gzclose.o gzclose.c
gcc -O3 -FPIC -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -DPIC -c -o objs/gzlib.o gzlib.c
gcc -O3 -FPIC -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -DPIC -c -o objs/gzread.o gzread.c
gcc -O3 -FPIC -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -DPIC -c -o objs/gzwrite.o gzwrite.c
gcc -shared -Wl,-soname,libz.so.1,-version-script,zlib.map -O3 -FPIC -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -o libz.so.1.2.13 adler32.lo crc32.lo deflate.lo in
ess.lo uncompr.lo gzclose.lo gzlib.lo gzread.lo gzwrite.lo -lc
rm -f libz.so libz.so.1
ln -s libz.so.1.2.13 libz.so
ln -s libz.so.1.2.13 libz.so.1
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -o examples example.o -L. libz.so.1.2.13
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -o minigzipsh minigzip.o -L. libz.so.1.2.13
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -I. -D_FILE_OFFSET_BITS=64 -c -o example64.o test/example.c
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -o example64 example64.o -L. libz.a
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -I. -D_FILE_OFFSET_BITS=64 -c -o minigzip64.o test/minigzip.c
gcc -O3 -D_LARGEFILE64_SOURCE=1 -DHAVE_HIDDEN -o minigzip64 minigzip64.o -L. libz.a
rm -f /home/ty777/.local/zlib/lib/libz.a
cp libz.a /home/ty777/.local/zlib/lib
chmod 644 /home/ty777/.local/zlib/lib/libz.a
cp libz.so.1.2.13 /home/ty777/.local/zlib/lib
chmod 755 /home/ty777/.local/zlib/lib/libz.so.1.2.13
rm -f /home/ty777/.local/zlib/share/man/man3/zlib.3
cp zlib.3 /home/ty777/.local/zlib/share/man/man3
chmod 644 /home/ty777/.local/zlib/share/man/man3/zlib.3
rm -f /home/ty777/.local/zlib/lib/pkgconfig/zlib.pc
cp zlib.pc /home/ty777/.local/zlib/lib/pkgconfig
chmod 644 /home/ty777/.local/zlib/lib/pkgconfig/zlib.pc
rm -f /home/ty777/.local/zlib/include/zlib.h /home/ty777/.local/zlib/include/zconf.h
cp zlib.h zconf.h /home/ty777/.local/zlib/include
chmod 644 /home/ty777/.local/zlib/include/zlib.h /home/ty777/.local/zlib/include/zconf.h
ty777@tyserver:~/zlib_build/zlib-1.2.13$
```

Now that zlib is installed we do a clean build of python

```
chmod 644 /home/ty777/.local/zlib/include/zlib.h /home/ty777/.local/zlib/include/zconf.h
ty777@tyserver:~/python_build/python-3.10.0$ cd ~/python_build/Python-3.10.0
ty777@tyserver:~/python_build/Python-3.10.0$ make clean
find . -depth -name '__pycache__' -exec rm -rf {} ';'
find . -name '*.py[co]' -exec rm -f {} ';'
find . -name '*.o' -exec rm -f {} ';'
find . -name '*.s[ol]' -exec rm -f {} ';'
find . -name '*.so.[0-9]*.[0-9]*' -exec rm -f {} ';'
find . -name '*.lst' -exec rm -f {} ';'
find build -name 'fficonfig.h' -exec rm -f {} ';' || true
find build -name '*.py' -exec rm -f {} ';' || true
find build -name '*.py[co]' -exec rm -f {} ';' || true
rm -f pybuilddir.txt
rm -f Lib/lib2to3/*Grammar*.pickle
rm -f Programs/_testembed Programs/_freeze_importlib
find build -type f -a ! -name '*.gc??' -exec rm -f {} ';'
rm -f Include/pydtrace_probes.h
rm -f profile-gen-stamp
make[1]: Entering directory '/home/ty777/python_build/Python-3.10.0'
find . -name '*.gc??' -exec rm -f {} ';'
find . -name '*.profclang?' -exec rm -f {} ';'
find . -name '*.dyn' -exec rm -f {} ';'
rm -f /home/ty777/python_build/Python-3.10.0/coverage.info
rm -rf /home/ty777/python_build/Python-3.10.0/leov-report
rm -f profile-run-stamp
make[1]: Leaving directory '/home/ty777/python_build/Python-3.10.0'
ty777@tyserver:~/python_build/Python-3.10.0$ export CPPFLAGS="-I$HOME/.local/zlib/include"
ty777@tyserver:~/python_build/Python-3.10.0$ export LDFLAGS="-L$HOME/.local/zlib/lib"
ty777@tyserver:~/python_build/Python-3.10.0$
```



We export the

## CPPFLAGS (C Preprocessor Flags)

Specifies flags for the **C preprocessor** (e.g., include paths for header files).

- Adding include directories with -I.
- Defining macros with -D.

## LDLFLAGS (Linker Flags):

Specifies flags for the **linker** (e.g., library paths or linking options).

- Adding library directories with -L.
- Linking libraries explicitly with -l.

And then run ./configure again for python build

```
make[1]: Leaving directory '/home/ty777/python_build/Python-3.10.0'
ty777@tyserver:~/python_build/Python-3.10.0$ export CPPFLAGS="-I$HOME/.local/zlib/include"
ty777@tyserver:~/python_build/Python-3.10.0$ export LDLFLAGS="-L$HOME/.local/zlib/lib"
ty777@tyserver:~/python_build/Python-3.10.0$ ./configure \
--enable-optimizations \
--prefix=$HOME/.local/python-3.10 \
--with-zlib=$HOME/.local/zlib
configure: WARNING: unrecognized options: --with-zlib
checking build system type... x86_64-pc-linux-gnu
checking host system type... x86_64-pc-linux-gnu
checking for python3.10... python3.10
checking for --enable-universalsdk... no
checking for --with-universal-archs... no
checking MACHDEP... "linux"
checking for gcc... gcc
checking whether the C compiler works... yes
checking for C compiler default output file name... a.out
checking for suffix of executables...
checking whether we are cross compiling... no
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether gcc accepts -g... yes
checking for gcc option to accept ISO C89... none needed
checking how to run the C preprocessor... gcc -E
checking for grep that handles long lines and -e... /usr/bin/grep
checking for a sed that does not truncate output... /usr/bin/sed
checking for --with-cxx-main=<compiler>... no
checking for g++... no
configure:

By default, distutils will build C++ extension modules with "g++".
If this is not intended, then set CXX on the configure command line.

checking for the platform triplet based on compiler characteristics... x86_64-linux-gnu
checking for -Wl,-no-as-needed... yes
checking for egrep... /usr/bin/grep -E
checking for ANSI C header files... |
```

```
checking for pkg-config... no
checking for openssl/ssl.h in /usr/local/ssl... no
checking for openssl/ssl.h in /usr/lib/ssl... no
checking for openssl/ssl.h in /usr/ssl... no
checking for openssl/ssl.h in /usr/pkg... no
checking for openssl/ssl.h in /usr/local... no
checking for openssl/ssl.h in /usr... no
checking whether compiling and linking against OpenSSL works... no
checking for --with-openssl-rpath...
checking for --with-ssl-default-suites... python
checking for --with-builtin-hashlib-hashes... md5,sha1,sha256,sha512,sha3,blake2
checking for --with-experimental-isolated-subinterpreters... no
checking for --with-static-libpython... yes
checking for --disable-test-modules... no
configure: creating ./config.status
config.status: creating Makefile.pre
config.status: creating Misc/python.pc
config.status: creating Misc/python-embed.pc
config.status: creating Misc/python-config.sh
config.status: creating Modules/ld_so_aix
config.status: creating pyconfig.h
configure: WARNING: unrecognized options: --with-zlib
creating Modules/Setup.local
creating Makefile
ty777@tyserver:~/python_build/Python-3.10.0$ |
```

Now we rebuild python

```
creating Makefile
ty777@tyserver:~/python_build/Python-3.10.0$ make -j $(nproc) && make install
Running code to generate profile data (this can take a while):
# First, we need to create a clean build with profile generation
# enabled.
make profile-gen-stamp
make[1]: Entering directory '/home/ty777/python_build/Python-3.10.0'
make clean
make[2]: Entering directory '/home/ty777/python_build/Python-3.10.0'
find . -depth -name '__pycache__' -exec rm -rf {} ';'
find . -name '*.py[co]' -exec rm -f {} ';'
find . -name '*.loa' -exec rm -f {} ';'
find . -name '*.s[ol]' -exec rm -f {} ';'
find . -name '*.so.[0-9]*.[0-9]*' -exec rm -f {} ';'
find . -name '*.lst' -exec rm -f {} ';'
find build -name 'fficonfig.h' -exec rm -f {} ';' || true
find build -name '*.py' -exec rm -f {} ';' || true
find build -name '*.py[co]' -exec rm -f {} ';' || true
rm -f pybuilddir.txt
rm -f Lib/lib2to3/*Grammar*.pickle
rm -f Programs/_testembed Programs/_freeze_importlib
find build -type f -a ! -name '*.gc??' -exec rm -f {} ';'
rm -f Include/pydtrace_probes.h
rm -f profile-gen-stamp
make[3]: Entering directory '/home/ty777/python_build/Python-3.10.0'
find . -name '*.gc??' -exec rm -f {} ';'
find . -name '*.profclang?' -exec rm -f {} ';'
find . -name '*.dyn' -exec rm -f {} ';'
rm -f /home/ty777/python_build/Python-3.10.0/coverage.info
rm -rf /home/ty777/python_build/Python-3.10.0/lcov-report
rm -f profile-run-stamp
make[3]: Leaving directory '/home/ty777/python_build/Python-3.10.0'
make[2]: Leaving directory '/home/ty777/python_build/Python-3.10.0'
touch profile-clean-stamp
Building with support for profile generation:
make build_all generate_profile
```

```
(cd /home/ty777/.local/python-3.10/bin; ln -s 2to3-3.10 2to3)
if test "x" != "x" ; then \
  rm -f /home/ty777/.local/python-3.10/bin/python3-32; \
  (cd /home/ty777/.local/python-3.10/bin; ln -s python3.10-32 python3-32) \
fi
if test "x" != "x" ; then \
  rm -f /home/ty777/.local/python-3.10/bin/python3-intel64; \
  (cd /home/ty777/.local/python-3.10/bin; ln -s python3.10-intel64 python3-intel64) \
fi
rm -f /home/ty777/.local/python-3.10/share/man/man1/python3.1
(cd /home/ty777/.local/python-3.10/share/man/man1; ln -s python3.10.1 python3.1)
if test "xupgrade" != "xno" ; then \
  case upgrade in \
    upgrade) ensurepip="--upgrade" ;; \
    install|*) ensurepip="" ;; \
  esac; \
  ./python -E -m ensurepip \
    $ensurepip --root=/ ; \
fi
WARNING: Value for scheme.headers does not match. Please report this to <https://github.com/pypa/pip/issues/10151>
distutils: /home/ty777/.local/python-3.10/include/python3.10/UNKNOWN
sysconfig: /home/ty777/python_build/Python-3.10.0/Include/UNKNOWN
WARNING: Additional context:
user = False
home = None
root = '/'
prefix = None
Looking in links: /tmp/tmpag3m2ath
Processing /tmp/tmpag3m2ath/setuptools-57.4.0-py3-none-any.whl
Processing /tmp/tmpag3m2ath/pip-21.2.3-py3-none-any.whl
Installing collected packages: setuptools, pip
WARNING: Value for scheme.headers does not match. Please report this to <https://github.com/pypa/pip/issues/10151>
distutils: /home/ty777/.local/python-3.10/include/python3.10/setuptools
sysconfig: /home/ty777/python_build/Python-3.10.0/Include/setuptools
WARNING: Value for scheme.headers does not match. Please report this to <https://github.com/pypa/pip/issues/10151>
distutils: /home/ty777/.local/python-3.10/include/python3.10/pip
sysconfig: /home/ty777/python_build/Python-3.10.0/Include/pip
Successfully installed pip-21.2.3 setuptools-57.4.0
ty777@tyserver:~/python_build/Python-3.10.0$ |
```

As you can see pip is installed as well

```

ty777@tyserver:~/python_build/python-3.10.0$ pip3.10 -v
Usage:
  pip3.10 <command> [options]

Commands:
  install             Install packages.
  download            Download packages.
  uninstall           Uninstall packages.
  freeze              Output installed packages in requirements format.
  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.

General Options:
  -h, --help            Show help.
  --isolated             Run pip in an isolated mode, ignoring environment variables and user configuration.
  -v, --verbose          Give more output. Option is additive, and can be used up to 3 times.
  -V, --version          Show version and exit.
  -q, --quiet            Give less output. Option is additive, and can be used up to 3 times (corresponding to WARNING, ERROR, and CRITICAL logging levels).
  --log <path>          Path to a verbose appending log.
  --no-input             Disable prompting for input.
  --proxy <proxy>        Specify a proxy in the form [user:passwd@]proxy.server:port.
  --retries <retries>    Maximum number of retries each connection should attempt (default 5 times).
  --timeout <sec>        Set the socket timeout (default 15 seconds).
  --exists-action <action> Default action when a path already exists: (s)witch, (i)gnore, (w)ipe, (b)ackup, (a)bort.
  --trusted-host <hostname> Mark this host or host:port pair as trusted, even though it does not have valid or any HTTPS.
  --cert <path>          Path to PEM-encoded CA certificate bundle. If provided, overrides the default. See 'SSL Certificate Verification' in pip documentation for more information.
  --client-cert <path>   Path to SSL client certificate, a single file containing the private key and the certificate in PEM format.
  --cache-dir <dir>      Store the cache data in <dir>.
  --no-cache-dir          Disable the cache.
  --disable-pip-version-check Don't periodically check PyPI to determine whether a new version of pip is available for download. Implied with --no-index.
  --no-color             Suppress colored output.
  --no-python-version-warning Silence deprecation warnings for upcoming unsupported Python versions.
  --use-feature <feature> Enable new functionality, that may be backward incompatible.
  --use-deprecated <feature> Enable deprecated functionality, that will be removed in the future.
ty777@tyserver:~/python_build/python-3.10.0$ pip3.10 --version
pip 21.2.3 from /home/ty777/.local/python-3.10.0/Lib/python3.10/site-packages/pip (python 3.10)

```

```

ty777@tyserver:~$ cd testing_label_studios
-bash: cd: testing_label_studios: No such file or directory
ty777@tyserver:~$ mkdir testing_label_studios
ty777@tyserver:~$ cd testing_label_studios
ty777@tyserver:~/testing_label_studios$ |

```

## Activating the virtual environment

```

python_build zlib_build
ty777@tyserver:~$ cd testing_label_studios
-bash: cd: testing_label_studios: No such file or directory
ty777@tyserver:~$ mkdir testing_label_studios
ty777@tyserver:~$ cd testing_label_studios
ty777@tyserver:~/testing_label_studios$ python3.10 -m venv venv
ty777@tyserver:~/testing_label_studios$ ls venv/
bin  include  lib  lib64  pyvenv.cfg
ty777@tyserver:~/testing_label_studios$ ls venv/bin
activate  activate.csh  activate.fish  Activate.ps1  pip  pip3  pip3.10  python  python3  python3.10
ty777@tyserver:~/testing_label_studios$ source venv/bin/activate
(venv) ty777@tyserver:~/testing_label_studios$ |

```

## SSL Errors on installing label studios with pip

```

(venv) ty777@tyserver:~/testing_label_studios$ pip3.10 install label-studio
WARNING: pip is configured with locations that require TLS/SSL, however the ssl module in Python is not available.
WARNING: Retrying (Retry(total=4, connect=None, read=None, redirect=None, status=None)) after connection broken by 'SSLError("Can't connect to HTTPS URL because the SSL module is not available.")': /simple/label-studio/
WARNING: Retrying (Retry(total=3, connect=None, read=None, redirect=None, status=None)) after connection broken by 'SSLError("Can't connect to HTTPS URL because the SSL module is not available.")': /simple/label-studio/
WARNING: Retrying (Retry(total=2, connect=None, read=None, redirect=None, status=None)) after connection broken by 'SSLError("Can't connect to HTTPS URL because the SSL module is not available.")': /simple/label-studio/
WARNING: Retrying (Retry(total=1, connect=None, read=None, redirect=None, status=None)) after connection broken by 'SSLError("Can't connect to HTTPS URL because the SSL module is not available.")': /simple/label-studio/
WARNING: Retrying (Retry(total=0, connect=None, read=None, redirect=None, status=None)) after connection broken by 'SSLError("Can't connect to HTTPS URL because the SSL module is not available.")': /simple/label-studio/
Could not fetch URL https://pypi.org/simple/label-studio/: There was a problem confirming the ssl certificate: HTTPSConnectionPool(host='pypi.org', port=443) with url: /simple/label-studio/ (Caused by SSLError("Can't connect to HTTPS URL because the SSL module is not available.)) - skipping
ERROR: Could not find a version that satisfies the requirement label-studio (from versions: none)
ERROR: No matching distribution found for label-studio
WARNING: pip is configured with locations that require TLS/SSL, however the ssl module in Python is not available.
Could not fetch URL https://pypi.org/simple/pip/: There was a problem confirming the ssl certificate: HTTPSConnectionPool(host='pypi.org', port=443): Max retries exceeded with url: /simple/pip/ (Caused by SSLError("Can't connect to HTTPS URL because the SSL module is not available.)) - skipping
(venv) ty777@tyserver:~/testing_label_studios$ |

```

## Rebuilding python with openssl(similar to how we did for zlib )

```
(venv) ty777@tyserver:~/testing_label_studios$ cd
(venv) ty777@tyserver:~/testing_label_studios$ mkdir -p ~/openssl_build && cd ~/openssl_build
(venv) ty777@tyserver:~/openssl_build$ wget https://www.openssl.org/source/openssl-1.1.1w.tar.gz
--2025-01-26 14:05:25-- https://www.openssl.org/source/openssl-1.1.1w.tar.gz
Resolving www.openssl.org (www.openssl.org)... 34.49.79.89, 2600:1901:0:d5b::
Connecting to www.openssl.org (www.openssl.org)[34.49.79.89]:443... connected.
HTTP request sent, awaiting response... 301 Moved Permanently
Location: https://github.com/openssl/openssl/releases/download/OpenSSL_1_1_1w/openssl-1.1.1w.tar.gz [following]
--2025-01-26 14:05:26-- https://github.com/openssl/openssl/releases/download/OpenSSL_1_1_1w/openssl-1.1.1w.tar.gz
Resolving github.com (github.com)... 20.207.73.82
Connecting to github.com (github.com)[20.207.73.82]:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2665be/7634677/b4c6e1f3-d928-4de0-a502-fc8dae2adf1e?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20250126%2Fus-east-1%2Fus-east-1%2Faws4_request&X-Amz-Date=20250126T140533Z&X-Amz-Expires=300&X-Amz-Signature=3d96072817f8e4183a83d6ce62652a76330c492abb2a504393cab971f7e1543a&X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dopenssl-1.1.1w.tar.gz&response-content-type=application%2Foctet-stream [following]
--2025-01-26 14:05:26-- https://objects.githubusercontent.com/github-production-release-asset-2665be/7634677/b4c6e1f3-d928-4de0-a502-fc8dae2adf1e?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20250126%2Fus-east-1%2Fus-east-1%2Faws4_request&X-Amz-Date=20250126T140533Z&X-Amz-Expires=300&X-Amz-Signature=3d96072817f8e4183a83d6ce62652a76330c492abb2a504393cab971f7e1543a&X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dopenssl-1.1.1w.tar.gz&response-content-type=application%2Foctet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.108.133, 185.199.109.133, 185.199.111.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)[185.199.108.133]:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 9893384 (9.4M) [application/octet-stream]
Saving to: 'openssl-1.1.1w.tar.gz'

openssl-1.1.1w.tar.gz 100%[=====] 9.43M 4.95MB/s in 1.9s

2025-01-26 14:05:29 (4.95 MB/s) - 'openssl-1.1.1w.tar.gz' saved [9893384/9893384]

(venv) ty777@tyserver:~/openssl_build$ tar -xzf openssl-1.1.1w.tar.gz
(venv) ty777@tyserver:~/openssl_build$ cd openssl-1.1.1w
(venv) ty777@tyserver:~/openssl_build/openssl-1.1.1w$ |
```

```
(venv) ty777@tyserver:~/openssl_build$ tar -xzf openssl-1.1.1w.tar.gz
(venv) ty777@tyserver:~/openssl_build$ cd openssl-1.1.1w
(venv) ty777@tyserver:~/openssl_build/openssl-1.1.1w$ ./config --prefix=$HOME/.local/openssl --openssldir=$HOME/.local/openssl
make && make install
Operating system: x86_64-whatever-linux2
Configuring OpenSSL version 1.1.1w (0x1010117f) for linux-x86_64
Using os-specific seed configuration
Creating configdata.pm
Creating Makefile

*****
***      OpenSSL has been successfully configured      ***
***
***      If you encounter a problem while building, please open an ***
***      issue on GitHub <https://github.com/openssl/openssl/issues> ***
***      and include the output from the following command:      ***
***
***      perl configdata.pm --dump      ***
***
***      (If you are now to OpenSSL, you might want to consult the ***
***      'Troubleshooting' section in the INSTALL file first)      ***
***
*****
/usr/bin/perl "-I." -Mconfigdata "util/dofile.pl" \
-oMakefile" include/crypto/bn_conf.h.in > include/crypto/bn_conf.h
/usr/bin/perl "-I." -Mconfigdata "util/dofile.pl" \
-oMakefile" include/crypto/dso_conf.h.in > include/crypto/dso_conf.h
/usr/bin/perl "-I." -Mconfigdata "util/dofile.pl" \
-oMakefile" include/openssl/opensslconf.h.in > include/openssl/opensslconf.h
make depend && make -all
make[1]: Entering directory '/home/ty777/openssl_build/openssl-1.1.1w'
```

```
/home/ty777/.local/openssl/share/doc/openssl/html/man7/passphrase-encoding.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/proxy-certificates.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/RAND.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/RAND_DRBG.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/RSA-PS.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/scrip.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/SH2.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/ssl.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/X25519.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/X448.html -> /home/ty777/.local/openssl/share/doc/openssl/html/man7/X25519.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/x509.html
(venv) ty777@tyserver:~/openssl_build/openssl-1.1.1w$ cd ~/python_build/Python-3.10.0
(venv) ty777@tyserver:~/python_build/Python-3.10.0$ export CPPFLAGS="-I$HOME/.local/openssl/include"
(venv) ty777@tyserver:~/python_build/Python-3.10.0$ export LDFLAGS="-L$HOME/.local/openssl/lib"
(venv) ty777@tyserver:~/python_build/Python-3.10.0$ export LD_LIBRARY_PATH="$HOME/.local/openssl/lib:$LD_LIBRARY_PATH"
(venv) ty777@tyserver:~/python_build/Python-3.10.0$
```

```
/home/ty777/.local/openssl/share/doc/openssl/html/man7/X25519.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/X448.html -> /home/ty777/.local/openssl/share/doc/openssl/html/man7/X25519.html
(venv) ty777@tyserver:~/openssl_build/openssl-1.1.1w$ cd ~/python_build/Python-3.10.0
(venv) ty777@tyserver:~/python_build/Python-3.10.0$ export CPPFLAGS="-I$HOME/.local/openssl/include"
(venv) ty777@tyserver:~/python_build/Python-3.10.0$ export LDFLAGS="-L$HOME/.local/openssl/lib"
(venv) ty777@tyserver:~/python_build/Python-3.10.0$ export LD_LIBRARY_PATH="$HOME/.local/openssl/lib:$LD_LIBRARY_PATH"
(venv) ty777@tyserver:~/python_build/Python-3.10.0$ ./configure \
--enable-optimizations \
--prefix=$HOME/.local/python-3.10 \
--with-openssl="$HOME/.local/openssl"
```

```

checking for shm_open... yes
checking for shm_unlink... yes
checking for openssl/ssl.h in /home/ty777/.local/openssl... yes
checking whether compiling and linking against OpenSSL works... yes
checking for --with-openssl-rpath...
checking for --with-ssl-default-suites... python
checking for --with-builtin-hashlib-hashes... md5,sha1,sha256,sha512,sha3,blake2
checking for --with-experimental-isolated-subinterpreters... no
checking for --with-static-libpython... yes
checking for --disable-test-modules... no
configure: creating ./config.status
config.status: creating Makefile.pre
config.status: creating Misc/python.pc
config.status: creating Misc/python-embed.pc
config.status: creating Misc/python-config.sh
config.status: creating Modules/ld_so_aix
config.status: creating pyconfig.h
creating Modules/Setup.local
creating Makefile
(venv) ty777@tyserver:~/python_build/Python-3.10.0$ |

```

```

config.status: creating Misc/python-embed.pc
config.status: creating Misc/python-config.sh
config.status: creating Modules/ld_so_aix
config.status: creating pyconfig.h
creating Modules/Setup.local
creating Makefile
(venv) ty777@tyserver:~/python_build/Python-3.10.0$ make -j $(nproc) && make install
Rebuilding with profile guided optimizations:
rm -f profile-clean-stamp
make build_all CFLAGS_MODIST="-fprofile-use -fprofile-correction" LDFLAGS_MODIST=""
make[1]: Entering directory '/home/ty777/python_build/Python-3.10.0'
gcc -c -Wno-unused-result -Wsign-compare -DNDEBUG -g -fwrapv -O3 -Wall -fno-semantic-interposition -std=c99 -Wextra -Wno-unused-result \
d-initializers -Werror=implicit-function-declaration -fvisibility=hidden -fprofile-use -fprofile-correction -I./Include/internal -I.-I./
clude -I/home/ty777/.local/openssl/include -DPy_BUILD_CORE -o Programs/python.o ./Programs/python.c
gcc -c -Wno-unused-result -Wsign-compare -DNDEBUG -g -fwrapv -O3 -Wall -fno-semantic-interposition -std=c99 -Wextra -Wno-unused-result \
d-initializers -Werror=implicit-function-declaration -fvisibility=hidden -fprofile-use -fprofile-correction -I./Include/internal -I.-I./
clude -I/home/ty777/.local/openssl/include -DPy_BUILD_CORE -o Parser/token.o Parser/token.c
gcc -c -Wno-unused-result -Wsign-compare -DNDEBUG -g -fwrapv -O3 -Wall -fno-semantic-interposition -std=c99 -Wextra -Wno-unused-result \
d-initializers -Werror=implicit-function-declaration -fvisibility=hidden -fprofile-use -fprofile-correction -I./Include/internal -I.-I./
clude -I/home/ty777/.local/openssl/include -DPy_BUILD_CORE -o Parser/pegen.o Parser/pegen.c

```

```

rm -f /home/ty777/.local/python-3.10/bin/2to3
(cd /home/ty777/.local/python-3.10/bin; ln -s 2to3-3.10 2to3)
if test "x" != "x" ; then \
    rm -f /home/ty777/.local/python-3.10/bin/python3-32; \
    (cd /home/ty777/.local/python-3.10/bin; ln -s python3.10-32 python3-32) \
fi
if test "x" != "x" ; then \
    rm -f /home/ty777/.local/python-3.10/bin/python3-intel64; \
    (cd /home/ty777/.local/python-3.10/bin; ln -s python3.10-intel64 python3-intel64) \
fi
rm -f /home/ty777/.local/python-3.10/share/man/man1/python3.1
(cd /home/ty777/.local/python-3.10/share/man/man1; ln -s python3.10.1 python3.1)
if test "xupgrade" != "xno" ; then \
    case upgrade in \
        upgrade) ensurepip="--upgrade" ;; \
        install|*) ensurepip="" ;; \
    esac; \
    ./python -E -m ensurepip \
    $ensurepip --root=/ ; \
fi
WARNING: Value for scheme.headers does not match. Please report this to <https://github.com/pypa/pip/issues/10151>
distutils: /home/ty777/.local/python-3.10/include/python3.10/UNKNOWN
sysconfig: /home/ty777/python_build/Python-3.10.0/Include/UNKNOWN
WARNING: Additional context:
user = False
home = None
root = '/'
prefix = None
Looking in links: /tmp/tmpnp0w_tru
Requirement already satisfied: setuptools in /home/ty777/.local/python-3.10/lib/python3.10/site-packages (57.4.0)
Requirement already satisfied: pip in /home/ty777/.local/python-3.10/lib/python3.10/site-packages (21.2.3)
(venv) ty777@tyserver:~/python_build/Python-3.10.0$ |

```

```

prefix = None
Looking in links: /tmp/tmpnp0w_tru
Requirement already satisfied: setuptools in /home/ty777/.local/python-3.10/lib/python3.10/site-packages (57.4.0)
Requirement already satisfied: pip in /home/ty777/.local/python-3.10/lib/python3.10/site-packages (21.2.3)
(venv) ty777@tyserver:~/python_build/Python-3.10.0$ echo 'export PATH="$HOME/.local/python-3.10/bin:$PATH"' >> ~/.bashrc
(venv) ty777@tyserver:~/python_build/Python-3.10.0$ echo 'export LD_LIBRARY_PATH="$HOME/.local/openssl/lib:$LD_LIBRARY_PATH"' >> ~/.bashrc
(venv) ty777@tyserver:~/python_build/Python-3.10.0$ source ~/.bashrc

```

## Open ssl is working

```

(venv) ty777@tyserver:~/python_build/Python-3.10.0$ source ~/.bashrc
ty777@tyserver:~/python_build/Python-3.10.0$ python3.10 -c "import ssl; print(ssl.OPENSSL_VERSION)"
OpenSSL 1.1.1w 11 Sep 2023
ty777@tyserver:~/python_build/Python-3.10.0$ |

```



## Installing Label Studios

```
ty777@tyserver:~/python_build/Python-3.10.0$ python3.10 -c "import ssl; print(ssl.OPENSSL_VERSION)"
OpenSSL 1.1.1w 11 Sep 2023
ty777@tyserver:~/python_build/Python-3.10.0$ python3.10 -m pip install label-studio --user
Collecting label-studio
  Downloading label_studio-1.15.0-py3-none-any.whl (60.6 MB)
    |#####| 60.6 MB 130 kB/s
Collecting pycpg2-binary==2.9.10
  Downloading pycpg2_binary-2.9.10-cp310-cp310-manylinux_2_17_x86_64.manylinux2014_x86_64.whl (3.0 MB)
    |#####| 3.0 MB 585 kB/s
Collecting rules==3.4
  Downloading rules-3.4-py2.py3-none-any.whl (25 kB)
Collecting Django<4.3.0,>=4.2.13
  Downloading Django-4.2.18-py3-none-any.whl (8.0 MB)
    |#####| 8.0 MB 323 kB/s
Collecting python-json-logger==2.0.4
  Downloading python_json_logger-2.0.4-py3-none-any.whl (7.8 kB)
Collecting rq==1.10.1
  Downloading rq-1.10.1-py2.py3-none-any.whl (70 kB)
    |#####| 70 kB 333 kB/s
Collecting google-cloud-logging<4.0.0,>=3.10.0
  Downloading google_cloud_logging-3.11.3-py2.py3-none-any.whl (218 kB)
    |#####| 218 kB 415 kB/s
Collecting google-cloud-storage<3.0.0,>=2.13.0
  Downloading google_cloud_storage-2.19.0-py2.py3-none-any.whl (131 kB)
    |#####| 131 kB 751 kB/s
Collecting ordered-set==4.0.2
  Downloading ordered_set-4.0.2.tar.gz (10 kB)
```

But getting errors because libffi not installed

So we install in a similar way to zlib/openssl

Creating a build directory and installing zip and unzipping

Then configure

```
ModuleNotFoundError: No module named '_ctypes'
^Cty777@tyserver:~/python_build/Python-3.10.0/label-studio$ ls ~/.local/libffi/lib
ls: cannot access '/home/ty777/.local/libffi/lib': No such file or directory
ty777@tyserver:~/python_build/Python-3.10.0/label-studio$ mkdir -p ~/libffi_build && cd ~/libffi_build
ty777@tyserver:~/libffi_build$ wget https://github.com/libffi/libffi/releases/download/v3.4.6/libffi-3.4.6.tar.gz
--2025-01-26 15:32:39-- https://github.com/libffi/libffi/releases/download/v3.4.6/libffi-3.4.6.tar.gz
Resolving github.com (github.com)... 20.207.73.82
Connecting to github.com (github.com)|20.207.73.82|:443... connected.
HTTP request sent, awaiting response... 302 Found
Location: https://objects.githubusercontent.com/github-production-release-asset-2e65be/321154/39abe7c6-34ad-4af4-b7fd-b08f2448f843?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20250126%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20250126T153243Z&X-Amz-Expires=300&X-Amz-Signature=ec462dbbb7981d87fa09edec90cc23e67fd49cf6b13ac4619727268bbde91e0b&X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dlibffi-3.4.6.tar.gz&response-content-type=application%2Foctet-stream [following]
--2025-01-26 15:32:39-- https://objects.githubusercontent.com/github-production-release-asset-2e65be/321154/39abe7c6-34ad-4af4-b7fd-b08f2448f843?X-Amz-Algorithm=AWS4-HMAC-SHA256&X-Amz-Credential=releaseassetproduction%2F20250126%2Fus-east-1%2Fs3%2Faws4_request&X-Amz-Date=20250126T153243Z&X-Amz-Expires=300&X-Amz-Signature=ec462dbbb7981d87fa09edec90cc23e67fd49cf6b13ac4619727268bbde91e0b&X-Amz-SignedHeaders=host&response-content-disposition=attachment%3B%20filename%3Dlibffi-3.4.6.tar.gz&response-content-type=application%2Foctet-stream
Resolving objects.githubusercontent.com (objects.githubusercontent.com)... 185.199.109.133, 185.199.110.133, 185.199.111.133, ...
Connecting to objects.githubusercontent.com (objects.githubusercontent.com)|185.199.109.133|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 1391684 (1.3M) [application/octet-stream]
Saving to: 'libffi-3.4.6.tar.gz'

libffi-3.4.6.tar.gz      100%[=====] 1.33M  1.99MB/s   in 0.7s

2025-01-26 15:32:41 (1.99 MB/s) - 'libffi-3.4.6.tar.gz' saved [1391684/1391684]

ty777@tyserver:~/libffi_build$ tar -xzf libffi-3.4.6.tar.gz
ty777@tyserver:~/libffi_build$ cd libffi-3.4.6
ty777@tyserver:~/libffi_build/libffi-3.4.6$ ./configure --prefix=$HOME/.local/libffi
checking build system type... x86_64-pc-linux-gnu
checking host system type... x86_64-pc-linux-gnu
checking target system type... x86_64-pc-linux-gnu
continue configure in default builddir "/x86_64-pc-linux-gnu"
...exec /bin/bash ./configure --srcdir=. --enable-builddir=x86_64-pc-linux-gnu "linux
gnu"
checking build system type... x86_64-pc-linux-gnu
checking host system type... x86_64-pc-linux-gnu
checking target system type... x86_64-pc-linux-gnu
checking for gsed... sed
checking for a BSD-compatible install... /usr/bin/install -c
checking whether build environment is sane... yes
checking for a race-free mkdir -p... /usr/bin/mkdir -p
checking for gawk... gawk
checking whether make sets $(MAKE)... yes
```

## Building libffi

```
config.status: executing src commands
ty777@tyserver:~/libffi_build/libffi-3.4.6$ make && make install
MAKE x86_64-pc-linux-gnu : 0 * all-all
make[1]: Entering directory '/home/ty777/libffi_build/libffi-3.4.6/x86_64-pc-linux-gnu'
make all-recursive
make[2]: Entering directory '/home/ty777/libffi_build/libffi-3.4.6/x86_64-pc-linux-gnu'
Making all in include
make[3]: Entering directory '/home/ty777/libffi_build/libffi-3.4.6/x86_64-pc-linux-gnu/include'
make[3]: Nothing to be done for 'all'.
make[3]: Leaving directory '/home/ty777/libffi_build/libffi-3.4.6/x86_64-pc-linux-gnu/include'
Making all in testsuite
make[3]: Entering directory '/home/ty777/libffi_build/libffi-3.4.6/x86_64-pc-linux-gnu/testsuite'
make[3]: Nothing to be done for 'all'.
make[3]: Leaving directory '/home/ty777/libffi_build/libffi-3.4.6/x86_64-pc-linux-gnu/testsuite'
Making all in man
make[3]: Entering directory '/home/ty777/libffi_build/libffi-3.4.6/x86_64-pc-linux-gnu/man'
make[3]: Nothing to be done for 'all'.
make[3]: Leaving directory '/home/ty777/libffi_build/libffi-3.4.6/x86_64-pc-linux-gnu/man'
Making all in doc
make[3]: Entering directory '/home/ty777/libffi_build/libffi-3.4.6/x86_64-pc-linux-gnu/doc'
make[3]: Nothing to be done for 'all'.
make[3]: Leaving directory '/home/ty777/libffi_build/libffi-3.4.6/x86_64-pc-linux-gnu/doc'
make[3]: Entering directory '/home/ty777/libffi_build/libffi-3.4.6/x86_64-pc-linux-gnu'
depbase='echo src/prep_cif.lo | sed 's|[^/]*|.deps/&;s|\.lo$||'';\
/bin/bash ./libtool --tag=CC --mode=compile gcc -DHAVE_CONFIG_H -I. -I.. -I. -I../include -Iinclude -I../src -I/home/ty777/.local/openssl/incl
ude -Wall -O3 -fomit-frame-pointer -fstrict-aliasing -ffast-math -march=amdfam10 -fexceptions -MT src/prep_cif.lo -MD -MP -MF $depbase.Tpo -c -o sr
c/prep_cif.lo ../src/prep_cif.c &&\
mv -f $depbase.Tpo $depbase.Plo
libtool: compile: gcc -DHAVE_CONFIG_H -I. -I.. -I. -I../include -Iinclude -I../src -I/home/ty777/.local/openssl/include -Wall -O3 -fomit-frame-po
inter -fstrict-aliasing -ffast-math -march=amdfam10 -fexceptions -MT src/prep_cif.lo -MD -MP -MF src/.deps/prep_cif.Tpo -c ../src/prep_cif.c -fPI
C -DPIC -o src/.libs/prep_cif.o
libtool: compile: gcc -DHAVE_CONFIG_H -I. -I.. -I. -I../include -Iinclude -I../src -I/home/ty777/.local/openssl/include -Wall -O3 -fomit-frame-po
inter -fstrict-aliasing -ffast-math -march=amdfam10 -fexceptions -MT src/prep_cif.lo -MD -MP -MF src/.deps/prep_cif.Tpo -c ../src/prep_cif.c -o sr
c/prep_cif.o >/dev/null 2>&1
depbase='echo src/types.lo | sed 's|[^/]*|.deps/&;s|\.lo$||'';\
/bin/bash ./libtool --tag=CC --mode=compile gcc -DHAVE_CONFIG_H -I. -I.. -I. -I../include -Iinclude -I../src -I/home/ty777/.local/openssl/incl
ude -Wall -O3 -fomit-frame-pointer -fstrict-aliasing -ffast-math -march=amdfam10 -fexceptions -MT src/types.lo -MD -MP -MF $depbase.Tpo -c -o sr
```

- add LIBDIR to the 'LD\_RUN\_PATH' environment variable during linking
- use the '-Wl,-rpath -Wl,LIBDIR' linker flag
- have your system administrator add LIBDIR to '/etc/ld.so.conf'

See any operating system documentation about shared libraries for more information, such as the ld(1) and ld.so(8) manual pages.

```
-----
/usr/bin/mkdir -p '/home/ty777/.local/libffi/lib/pkgconfig'
/usr/bin/install -c -m 644 libffi.pc '/home/ty777/.local/libffi/lib/pkgconfig'
make[3]: Leaving directory '/home/ty777/libffi_build/libffi-3.4.6/x86_64-pc-linux-gnu'
make[2]: Leaving directory '/home/ty777/libffi_build/libffi-3.4.6/x86_64-pc-linux-gnu'
make[1]: Leaving directory '/home/ty777/libffi_build/libffi-3.4.6/x86_64-pc-linux-gnu'
ty777@tyserver:~/libffi_build/libffi-3.4.6$ ls ~/.local/libffi/lib
libffi.a libffi.la libffi.so libffi.so.8 libffi.so.8.1.4 pkgconfig
ty777@tyserver:~/libffi_build/libffi-3.4.6$ |
```

## Python clean build

```
ty777@tyserver:~/libffi_build/libffi-3.4.6$ ls ~/.local/libffi/lib
libffi.a libffi.la libffi.so libffi.so.8 libffi.so.8.1.4 pkgconfig
ty777@tyserver:~/libffi_build/libffi-3.4.6$ ls ~/.local/libffi/lib64
ls: cannot access '/home/ty777/.local/libffi/lib64': No such file or directory
ty777@tyserver:~/libffi_build/libffi-3.4.6$ cd ~/python_build/Python-3.10.0
ty777@tyserver:~/python_build/Python-3.10.0$ make clean
find . -depth -name '__pycache__' -exec rm -rf {} ';'
find . -name '*.py[co]' -exec rm -f {} ';'
find . -name '*.lo' -exec rm -f {} ';'
find . -name '*.s[ol]' -exec rm -f {} ';'
find . -name '*.so.[0-9]*.[0-9]*' -exec rm -f {} ';'
find . -name '*.lst' -exec rm -f {} ';'
find build -name 'fficonfig.h' -exec rm -f {} ';' || true
find build -name '*.py' -exec rm -f {} ';' || true
find build -name '*.py[co]' -exec rm -f {} ';' || true
rm -f pybuilddir.txt
rm -f Lib/lib2to3/*Grammar*.pickle
rm -f Programs/_testembed Programs/_freeze_importlib
find build -type f -a ! -name '*.gc??' -exec rm -f {} ';'
rm -f Include/pydtrace_probes.h
rm -f profile-gen-stamp
make[1]: Entering directory '/home/ty777/python_build/Python-3.10.0'
find . -name '*.gc??' -exec rm -f {} ';'
find . -name '*.profclang?' -exec rm -f {} ';'
find . -name '*.dyn' -exec rm -f {} ';'
rm -f /home/ty777/python_build/Python-3.10.0/coverage.info
rm -rf /home/ty777/python_build/Python-3.10.0/lcov-report
rm -f profile-run-stamp
make[1]: Leaving directory '/home/ty777/python_build/Python-3.10.0'
ty777@tyserver:~/python_build/Python-3.10.0$ |
```



```

/home/ty777/.local/openssl/share/doc/openssl/html/man3/X509_REVOKED_delete_ext.html -> /home/ty777/.local/openssl/share/doc/openssl/html/man3/X509v3_get_ext_by_NID.html
/home/ty777/.local/openssl/share/doc/openssl/html/man3/X509_REVOKED_add_ext.html -> /home/ty777/.local/openssl/share/doc/openssl/html/man3/X509v3_get_ext_by_NID.html
/home/ty777/.local/openssl/share/doc/openssl/html/man5/config.html
/home/ty777/.local/openssl/share/doc/openssl/html/man5/x509v3_config.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/bio.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/crypto.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/ct.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/des_modes.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/Ed25519.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/Ed448.html -> /home/ty777/.local/openssl/share/doc/openssl/html/man7/Ed25519.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/evp.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/ssl_store-file.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/ssl_store.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/passphrase-encoding.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/proxy-certificates.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/RAND.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/RAND_DRBG.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/RSA-PSS.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/rsaconf.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/SM2.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/ssl.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/X25519.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/X448.html -> /home/ty777/.local/openssl/share/doc/openssl/html/man7/X25519.html
/home/ty777/.local/openssl/share/doc/openssl/html/man7/x509.html
(env) ty777@tyserver:~/openssl_build/openssl-1.1.1w$ |

```

## Exporting Libffi headers, libraries

```

rm -f profile-run-stamp
make[1]: Leaving directory '/home/ty777/python_build/Python-3.10.0'
ty777@tyserver:~/python_build/Python-3.10.0$ export CPPFLAGS="-I$HOME/.local/libffi/include"
ty777@tyserver:~/python_build/Python-3.10.0$ export LDFLAGS="-L$HOME/.local/libffi/lib -L$HOME/.local/libffi/lib64"
ty777@tyserver:~/python_build/Python-3.10.0$ export LD_LIBRARY_PATH="$HOME/.local/libffi/lib:$HOME/.local/libffi/lib64:$LD_LIBRARY_PATH"
ty777@tyserver:~/python_build/Python-3.10.0$ ./configure \
--enable-optimizations \
--prefix=$HOME/.local/python-3.10 \
--with-openssl="$HOME/.local/openssl" \
--with-system-ffi
checking build system type... x86_64-pc-linux-gnu
checking host system type... x86_64-pc-linux-gnu
checking for python3.10... python3.10
checking for --enable-universalsdk... no
checking for --with-universal-archs... no
checking MACHDEP... "linux"
checking for gcc... gcc
checking whether the C compiler works... yes
checking for C compiler default output file name... a.out
checking for suffix of executables...
checking whether we are cross compiling... no
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether gcc accepts -g... yes
checking for gcc option to accept ISO C89... none needed
checking how to run the C preprocessor... gcc -E
checking for grep that handles long lines and -e... /usr/bin/grep
checking for a sed that does not truncate output... /usr/bin/sed
checking for --with-cxx-main=<compiler>... no
checking for g++... no
configure:
By default, distutils will build C++ extension modules with "g++"

```

## Rebuilding python

```
configure: creating ./config.status
config.status: creating Makefile.pre
config.status: creating Misc/python.pc
config.status: creating Misc/python-embed.pc
config.status: creating Misc/python-config.sh
config.status: creating Modules/ld_so_aix
config.status: creating pyconfig.h
config.status: pyconfig.h is unchanged
creating Modules/Setup.local
creating Makefile
ty777@tyserver:~/python_build/Python-3.10.0$ make -j $(nproc) && make install
Running code to generate profile data (this can take a while):
# First, we need to create a clean build with profile generation
# enabled.
make profile-gen-stamp
make[1]: Entering directory '/home/ty777/python_build/Python-3.10.0'
make clean
make[2]: Entering directory '/home/ty777/python_build/Python-3.10.0'
find . -depth -name '__pycache__' -exec rm -rf {} ';'
find . -name '*.py[co]' -exec rm -f {} ';'
find . -name '*.o[a]' -exec rm -f {} ';'
find . -name '*.s[o]' -exec rm -f {} ';'
find . -name '*.so.[0-9]*.[0-9]*' -exec rm -f {} ';'
find . -name '*.lst' -exec rm -f {} ';'
find build -name 'fficonfig.h' -exec rm -f {} ';' || true
find build -name '*.py' -exec rm -f {} ';' || true
find build -name '*.py[co]' -exec rm -f {} ';' || true
rm -f pybuilddir.txt
rm -f Lib/lib2to3/*Grammar*.pickle
rm -f Programs/_testembed Programs/_freeze_importlib
find build -type f -a ! -name '*.gc??' -exec rm -f {} ';'
rm -f Include/pydtrace_probes.h
rm -f profile-gen-stamp
make[3]: Entering directory '/home/ty777/python_build/Python-3.10.0'
find . -name '*.gc??' -exec rm -f {} ';'
find . -name '*.profclang?' -exec rm -f {} ';'
find . -name '*.dyn' -exec rm -f {} ';'
rm -f /home/ty777/python_build/Python-3.10.0/coverage.info
rm -rf /home/ty777/python_build/Python-3.10.0/lcov-report
rm -f profile-run-stamp
make[3]: Leaving directory '/home/ty777/python_build/Python-3.10.0'
make[2]: Leaving directory '/home/ty777/python_build/Python-3.10.0'
touch profile-clean-stamp
Building with support for profile generation:
make build_all_generate_profile
make[2]: Entering directory '/home/ty777/python_build/Python-3.10.0'
make build_all CFLAGS_NODIST=" -fprofile-generate" LDFLAGS_NODIST=" -fprofile-generate" LIBS="-lcrypt -ldl -lm"
make[3]: Entering directory '/home/ty777/python_build/Python-3.10.0'
gcc -c -Wno-unused-result -Wsign-compare -DNDEBUG -g -fwrapv -O3 -Wall -fno-semantic-interposition -std=c99 -Wextra -Wno-unused-result \
sed-parameter -Wno-missing-field-initializers -Werror=implicit-function-declaration -fvisibility=hidden -fprofile-generate -I./Include/int
I. -I./Include -I/home/ty777/.local/libffi/include -I/home/ty777/.local/libffi/include -DPy_BUILD_CORE -o Programs/python.o ./Programs/py
gcc -c -Wno-unused-result -Wsign-compare -DNDEBUG -g -fwrapv -O3 -Wall -fno-semantic-interposition -std=c99 -Wextra -Wno-unused-result \
sed-parameter -Wno-missing-field-initializers -Werror=implicit-function-declaration -fvisibility=hidden -fprofile-generate -I./Include/int
I. -I./Include -I/home/ty777/.local/libffi/include -I/home/ty777/.local/libffi/include -DPy_BUILD_CORE -o Parser/token.o Parser/token.c
gcc -c -Wno-unused-result -Wsign-compare -DNDEBUG -g -fwrapv -O3 -Wall -fno-semantic-interposition -std=c99 -Wextra -Wno-unused-result
```

## Tried running label studio but sqlite error

```
ty777@tyserver:~/python_build/Python-3.10.0$ label-studio start
=> Database and media directory: /home/ty777/.local/share/label-studio
=> Static URL is set to: /static/
=> Database and media directory: /home/ty777/.local/share/label-studio
=> Static URL is set to: /static/
Read environment variables from: /home/ty777/.local/share/label-studio/.env
get 'SECRET_KEY' casted as '<class 'str'>' with default ''
Starting new HTTPS connection (1): pypi.org:443
https://pypi.org:443 "GET /pypi/label-studio/json HTTP/1.1" 200 33651
No module named 'sqlite3'
Traceback (most recent call last):
  File "/home/ty777/.local/python-3.10/bin/label-studio", line 8, in <module>
    sys.exit(main())
  File "/home/ty777/.local/python-3.10/lib/python3.10/site-packages/label_studio/server.py", line 296, in main
    _setup_env()
  File "/home/ty777/.local/python-3.10/lib/python3.10/site-packages/label_studio/server.py", line 35, in _setup_env
    get_wsgi_application()
  File "/home/ty777/.local/python-3.10/lib/python3.10/site-packages/django/core/wsgi.py", line 12, in get_wsgi_application
    django.setup(set_prefix=False)
  File "/home/ty777/.local/python-3.10/lib/python3.10/site-packages/django/__init__.py", line 24, in setup
    apps.populate(settings.INSTALLED_APPS)
  File "/home/ty777/.local/python-3.10/lib/python3.10/site-packages/django/apps/registry.py", line 116, in populate
    app_config.import_models()
  File "/home/ty777/.local/python-3.10/lib/python3.10/site-packages/django/apps/config.py", line 269, in import_models
    self.models_module = import_module(models_module_name)
  File "/home/ty777/.local/python-3.10/lib/python3.10/importlib/__init__.py", line 126, in import_module
    return _bootstrap._gcd_import(name[level:], package, level)
  File "<frozen importlib._bootstrap>", line 1050, in _gcd_import
  File "<frozen importlib._bootstrap>", line 1027, in _find_and_load
  File "<frozen importlib._bootstrap>", line 1006, in _find_and_load_unlocked
  File "<frozen importlib._bootstrap>", line 688, in _load_unlocked
  File "<frozen importlib._bootstrap_external>", line 983, in exec_module
  File "<frozen importlib._bootstrap>", line 241, in _call_with_frames_removed
  File "/home/ty777/.local/python-3.10/lib/python3.10/site-packages/django/contrib/auth/models.py", line 3, in <module>
    from django.contrib.auth.base_user import AbstractBaseUser, BaseUserManager
  File "/home/ty777/.local/python-3.10/lib/python3.10/site-packages/django/contrib/auth/base_user.py", line 57, in <module>
    class AbstractBaseUser(models.Model):
  File "/home/ty777/.local/python-3.10/lib/python3.10/site-packages/django/db/models/base.py", line 143, in __new__
    new_class.add_to_class("_meta", Options(meta, app_label))
  File "/home/ty777/.local/python-3.10/lib/python3.10/site-packages/django/db/models/base.py", line 371, in add_to_class
    value.contribute_to_class(cls, name)
  File "/home/ty777/.local/python-3.10/lib/python3.10/site-packages/django/db/models/options.py", line 243, in contribute_to_class
    self.db_table, connection.ops.max_name_length()
  File "/home/ty777/.local/python-3.10/lib/python3.10/site-packages/django/utils/connection.py", line 15, in __getattr__
    return getattr(self._connections[self._alias], item)
  File "/home/ty777/.local/python-3.10/lib/python3.10/site-packages/django/utils/connection.py", line 62, in __getitem__
    conn = self.create_connection(alias)
  File "/home/ty777/.local/python-3.10/lib/python3.10/site-packages/django/db/utils.py", line 193, in create_connection
    backend = load_backend(db["ENGINE"])
  File "/home/ty777/.local/python-3.10/lib/python3.10/site-packages/django/db/utils.py", line 113, in load_backend
    return import_module("%s.base" % backend_name)
  File "/home/ty777/.local/python-3.10/lib/python3.10/importlib/__init__.py", line 126, in import_module
    return _bootstrap._gcd_import(name[level:], package, level)
  File "/home/ty777/.local/python-3.10/lib/python3.10/site-packages/django/db/backends/sqlite3/base.py", line 9, in <module>
    from sqlite3 import dbapi2 as Database
  File "/home/ty777/.local/python-3.10/lib/python3.10/sqlite3/__init__.py", line 23, in <module>
    from sqlite3.dbapi2 import *
  File "/home/ty777/.local/python-3.10/lib/python3.10/sqlite3/dbapi2.py", line 27, in <module>
    from _sqlite3 import *
ModuleNotFoundError: No module named 'sqlite3'
Sentry is attempting to send 2 pending events
Waiting up to 2 seconds
Press Ctrl-C to quit
```

## Downloading sqlite3 using wget and Unzipping the tar file

```
Press Ctrl-C to quit
ty777@tyserver:~/python_build/Python-3.10.0$ wget https://www.sqlite.org/2023/sqlite-autoconf-3430200.tar.gz
--2025-01-26 17:33:49-- https://www.sqlite.org/2023/sqlite-autoconf-3430200.tar.gz
Resolving www.sqlite.org (www.sqlite.org)... 45.33.6.223, 2600:3c00::f03c:91ff:fe96:b959
Connecting to www.sqlite.org (www.sqlite.org)|45.33.6.223|:443... connected.
HTTP request sent, awaiting response... 200 OK
Length: 3177625 (3.0M) [application/x-gzip]
Saving to: 'sqlite-autoconf-3430200.tar.gz'

sqlite-autoconf-3430200.tar.gz 100%[=====] 3.03M 727KB/s in 4.3s

2025-01-26 17:33:55 (727 KB/s) - 'sqlite-autoconf-3430200.tar.gz' saved [3177625/3177625]

ty777@tyserver:~/python_build/Python-3.10.0$ tar -xvf sqlite-autoconf-3430200.tar.gz
sqlite-autoconf-3430200/
sqlite-autoconf-3430200/tea/
sqlite-autoconf-3430200/tea/Makefile.in
sqlite-autoconf-3430200/tea/pkgIndex.tcl.in
sqlite-autoconf-3430200/tea/aclocal.m4
sqlite-autoconf-3430200/tea/README
sqlite-autoconf-3430200/tea/Configure
sqlite-autoconf-3430200/tea/win/
sqlite-autoconf-3430200/tea/win/nmakehlp.c
sqlite-autoconf-3430200/tea/win/makefile.vc
sqlite-autoconf-3430200/tea/win/rules.vc
sqlite-autoconf-3430200/tea/generic/
sqlite-autoconf-3430200/tea/generic/tclsqlite3.c
sqlite-autoconf-3430200/tea/configure.ac
sqlite-autoconf-3430200/tea/license.terms
sqlite-autoconf-3430200/tea/tclconfig/
sqlite-autoconf-3430200/tea/tclconfig/install-sh
sqlite-autoconf-3430200/tea/tclconfig/tcl.m4
sqlite-autoconf-3430200/tea/doc/
sqlite-autoconf-3430200/tea/doc/sqlite3.n
sqlite-autoconf-3430200/config_guess
sqlite-autoconf-3430200/install-sh
sqlite-autoconf-3430200/Makefile.fallback
sqlite-autoconf-3430200/Makefile.in
sqlite-autoconf-3430200/depcomp
sqlite-autoconf-3430200/Makefile.msc
sqlite-autoconf-3430200/ltmain.sh
sqlite-autoconf-3430200/config.guess
sqlite-autoconf-3430200/sqlite3rc.h
sqlite-autoconf-3430200/aclocal.m4
sqlite-autoconf-3430200/configure
sqlite-autoconf-3430200/sqlite3.1
sqlite-autoconf-3430200/sqlite3.c
```

Cd into sqlite-autoconf-3430200

And run ./configure

Which, Prepares the build environment by checking system dependencies, setting compiler flags, and generating a Makefile.

- --prefix=<path>: Specifies the installation directory (e.g., \$HOME/.local/sqlite).
- --enable-optimizations: Optimizes the build (used for Python).

```
sqlite-autoconf-3430200/shell.c
ty777@tyserver:~/python_build/Python-3.10.0$ cd sqlite-autoconf-3430200
ty777@tyserver:~/python_build/Python-3.10.0/sqlite-autoconf-3430200$ ./configure --prefix=$HOME/.local/sqlite3
checking for a BSD-compatible install... /usr/bin/install -c
checking whether build environment is sane... yes
checking for a race-free mkdir -p... /usr/bin/mkdir -p
checking for gawk... gawk
checking whether make sets $(MAKE)... yes
checking whether make supports nested variables... yes
checking whether make supports the include directive... yes (GNU style)
checking for gcc... gcc
checking whether the C compiler works... yes
checking for C compiler default output file name... a.out
checking for suffix of executables...
checking whether we are cross compiling... no
checking for suffix of object files... o
checking whether the compiler supports GNU C... yes
checking whether gcc accepts -g... yes
checking for gcc option to enable C11 features... none needed
checking whether gcc understands -c and -o together... yes
checking dependency style of gcc... gcc3
checking for special C compiler options needed for large files... no
checking for _FILE_OFFSET_BITS value needed for large files... no
checking for gcc... (cached) gcc
checking whether the compiler supports GNU C... (cached) yes
checking whether gcc accepts -g... (cached) yes
checking for gcc option to enable C11 features... (cached) none needed
checking whether gcc understands -c and -o together... (cached) yes
checking dependency style of gcc... (cached) gcc3
checking build system type... x86_64-pc-linux-gnu
checking host system type... x86_64-pc-linux-gnu
checking how to print strings... printf
checking for a sed that does not truncate output... /usr/bin/sed
checking for grep that handles long lines and -e... /usr/bin/grep
checking for egrep... /usr/bin/grep -E
checking for fgrep... /usr/bin/grep -F
checking for ld used by gcc... /usr/bin/ld
checking if the linker (/usr/bin/ld) is GNU ld... yes
checking for BSD- or MS-compatible name lister (nm)... /usr/bin/nm -B
checking the name lister (/usr/bin/nm -B) interface... BSD nm
checking whether ln -s works... yes
checking the maximum length of command line arguments... 1572864
checking how to convert x86_64-pc-linux-gnu file names to x86_64-pc-linux-gnu format... func_convert_file_noop
checking how to convert x86_64-pc-linux-gnu file names to toolchain format... func_convert_file_noop
checking for /usr/bin/ld option to reload object files... -r
checking for objdump... objdump
checking how to recognize dependent libraries... pass_all
checking for dlltool... no
checking how to associate runtime and link libraries... printf %s\n
checking for ar... ar
checking for archiver @FILE support... @
checking for strip... strip
checking for ranlib... ranlib
checking command to parse /usr/bin/nm -B output from gcc object... ok
checking for sysroot... no
checking for a working dd... /usr/bin/dd
checking how to truncate binary pipes... /usr/bin/dd bs=4096 count=1
checking for mt... mt
checking if mt is a manifest tool... no
checking for stdio.h... yes
checking for stdlib.h... yes
checking for string.h... yes
checking for inttypes.h... yes
checking for stdint.h... yes
checking for strings.h... yes
checking for sys/stat.h... yes
checking for sys/types.h... yes
```

**make**

Compiles the source code into binaries using the rules defined in the Makefile.

If you run: make -j\$(nproc)

it compiles using all CPU cores

```
c:\python\python-build\Python-3.10\python.exe --help autoconf -3498206$ make
gcc -DPACKAGE_NAME='sqlite' -DPACKAGE_TARNAME='sqlite' -DPACKAGE_VERSION='3.43.2' -DPACKAGE_STRING='sqlite 3.43.2' -DPACKAGE_BUGREPORT='http://www.sqlite.org/' -DPACKAGE_URL='' -DPACKAGE='sqlite' -DVERSION='3.43.2' -DHAVE_STDI0_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -DHAVE_STRINGS_H=1 -DHAVE_SYS_STAT_H=1 -DHAVE_SYS_TYPES_H=1 -DHAVE_UNISTD_H=1 -DSTD_C_HEADERS=1 -DHAVE_DLFCN_H=1 -DLT_OBJDIR='.libs/' -DHAVE_FDATASYNC=1 -DHAVE_USLEEP=1 -DHAVE_LOCALTIME_R=1 -DHAVE_GTHRE_R=1 -DHAVE_DECL_STRERROR=1 -DHAVE_STRERROR_R=1 -DHAVE_POSIX_FALLOCATE=1 -DHAVE_ZLIB_H=1 -I. -I/home/cy777/local/libffi/include -D_REENTRANT=1 -DSQLITE_READSAFE=1 -DSQLITE_ENABLE_MATH_FUNCTIONS -DSQLITE_ENABLE_FT54 -DSQLITE_ENABLE_FT55 -DSQLITE_ENABLE_RTREE -DSQLITE_ENABLE_GEOPOLY -DSQLITE_HAVE_ZLIB -DSQLITE_ENABLE_EXPAND_STMT_CACHE -DOS=posix -DSQLITE_ENABLE_LOAD_EXTENSION -DSQLITE_ENABLE_TEMP_STORE=2 -DSQLITE_ENABLE_STATVFS -DSQLITE_ENABLE_DBSTAT_VTAB -I/home/cy777/local/sqlite/include -MT sqlite-shell.o -MD -MF deps/sqlite3-shell.Tpo -c o-sqlite3-shell.o 'test -f shell.c' || echo './shell.c'
mv f.deps/sqlite3-shell.Tpo c.deps/sqlite3-shell.Po
gcc -DPACKAGE_NAME='sqlite' -DPACKAGE_TARNAME='sqlite' -DPACKAGE_VERSION='3.43.2' -DPACKAGE_STRING='sqlite 3.43.2' -DPACKAGE_BUGREPORT='http://www.sqlite.org/' -DPACKAGE_URL='' -DPACKAGE='sqlite' -DVERSION='3.43.2' -DHAVE_STDI0_H=1 -DHAVE_STDLIB_H=1 -DHAVE_STRING_H=1 -DHAVE_INTTYPES_H=1 -DHAVE_STDINT_H=1 -DHAVE_STRINGS_H=1 -DHAVE_SYS_STAT_H=1 -DHAVE_SYS_TYPES_H=1 -DHAVE_UNISTD_H=1 -DSTD_C_HEADERS=1 -DHAVE_DLFCN_H=1 -DLT_OBJDIR='.libs/' -DHAVE_FDATASYNC=1 -DHAVE_USLEEP=1 -DHAVE_LOCALTIME_R=1 -DHAVE_GTHRE_R=1 -DHAVE_DECL_STRERROR=1 -DHAVE_STRERROR_R=1 -DHAVE_POSIX_FALLOCATE=1 -DHAVE_ZLIB_H=1 -I. -I/home/cy777/local/libffi/include -D_REENTRANT=1 -DSQLITE_READSAFE=1 -DSQLITE_ENABLE_MATH_FUNCTIONS -DSQLITE_ENABLE_FT54 -DSQLITE_ENABLE_FT55 -DSQLITE_ENABLE_RTREE -DSQLITE_ENABLE_GEOPOLY -DSQLITE_HAVE_ZLIB -DSQLITE_ENABLE_EXPAND_STMT_CACHE -DOS=posix -DSQLITE_ENABLE_LOAD_EXTENSION -DSQLITE_ENABLE_TEMP_STORE=2 -DSQLITE_ENABLE_STATVFS -DSQLITE_ENABLE_DBSTAT_VTAB -I/home/cy777/local/sqlite/include -MT sqlite3.o -MD -MF deps/sqlite3.o.Tpo -c sqlite3.c
```

## make install

Installs the compiled binaries, libraries, and headers to the directory specified in

```
--prefix
```

Result:

- Binaries: `$HOME/.local/sqlite/bin/sqlite3`
- Libraries: `$HOME/.local/sqlite/lib/libsqlite3.so`
- Headers: `$HOME/.local/sqlite/include/sqlite3.`

```
libtool: link: (cd ".libs" && rm -f "libssqlite3.la" && ln -s "../libssqlite3.la" "libssqlite3.la" )
ty777@tyserver:~/python_build/python-3.10.0/sqlite-autoconf-3430200$ make install
make[1]: Entering directory '/home/ty777/python_build/Python-3.10.0/sqlite-autoconf-3430200'
/usr/bin/mkdir -p '/home/ty777/.local/sqlite3/lib'
/bin/bash ./libtool --mode=install /usr/bin/install -c 'libssqlite3.la' '/home/ty777/.local/sqlite3/lib'
libtool: install: /usr/bin/install -c .libs/libssqlite3.so.0.8.6 /home/ty777/.local/sqlite3/lib/libssqlite3.so.0.8.6
libtool: install: (cd /home/ty777/.local/sqlite3/lib && if ln -s -f libssqlite3.so.0.8.6 libssqlite3.so.0 || { rm -f libssqlite3.so.0 && ln -s libssqlite
o.0; }; })
libtool: install: (cd /home/ty777/.local/sqlite3/lib && if ln -s -f libssqlite3.so.0.8.6 libssqlite3.so || { rm -f libssqlite3.so && ln -s libssqlite3.so
; }; })
libtool: install: /usr/bin/install -c .libs/libssqlite3.lai /home/ty777/.local/sqlite3/lib/libssqlite3.la
libtool: install: /usr/bin/install -c .libs/libssqlite3.a /home/ty777/.local/sqlite3/lib/libssqlite3.a
libtool: install: chmod 644 /home/ty777/.local/sqlite3/lib/libssqlite3.a
libtool: install: ranlib /home/ty777/.local/sqlite3/lib/libssqlite3.a
libtool: finish: PATH="/home/ty777/.local/python-3.10/bin:/home/ty777/.local/python-3.10/bin:/home/ty777/.local/p
777/.local/python-3.10/bin:/home/ty777/.local/python-3.10/bin:/home/ty777/.local/python-3.10/bin:/home/ty777/testing_label_studios/venv/bin:/home/ty
bin:/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/sbin:/bin:/usr/games:/usr/local/games:/snap/bin:/sbin" ldconfig -n /home/ty777/.local/sqlite3
Libraries have been installed in:
/home/ty777/.local/sqlite3/lib
If you ever happen to want to link against installed libraries
in a given directory, LIBDIR, you must either use libtool,
and specify the full pathname of the library, or use the '-LLIBDIR'
flag during linking and do at least one of the following:
- add LIBDIR to the 'LD_LIBRARY_PATH' environment variable
during execution
- add LIBDIR to the 'LD_RUN_PATH' environment variable
during linking
```

## Clean build by removing previous builds

```
ty777@tyserver:~/python_build/Python-3.10.0/sqlite-autoconf-3430200$ export CPPFLAGS="-I$HOME/.local/sqlite3/include"
ty777@tyserver:~/python_build/Python-3.10.0/sqlite-autoconf-3430200$ echo 'export LD_FLAGS="-L$HOME/.local/sqlite3/lib"' >> ~/.bashrc
ty777@tyserver:~/python_build/Python-3.10.0/sqlite-autoconf-3430200$ echo 'export LD_LIBRARY_PATH="$HOME/.local/sqlite3/lib:$LD_LIBRARY_PATH"' >> ~/.bashrc
ty777@tyserver:~/python_build/Python-3.10.0/sqlite-autoconf-3430200$ source ~/.bashrc
ty777@tyserver:~/python_build/Python-3.10.0/sqlite-autoconf-3430200$ cd /home/ty777/python_build/Python-3.10.0
ty777@tyserver:~/python_build/Python-3.10.0$ make clean
find . -depth -name '__pycache__' -exec rm -rf {} ';'
find . -name '*.py[co]' -exec rm -f {} ';'
find . -name '*.so' -exec rm -f {} ';'
find . -name '*.so.[0-9]*' -exec rm -f {} ';'
find . -name '*.so.[0-9]*.[0-9]*' -exec rm -f {} ';'
find . -name '*.so.[0-9]*.[0-9]*.[0-9]*' -exec rm -f {} ';'
find . -name '*.pyc' -exec rm -f {} ';'
find build -name 'fficonfig.h' -exec rm -f {} ';' || true
find build -name '*.py' -exec rm -f {} ';' || true
find build -name '*.py[co]' -exec rm -f {} ';' || true
rm -f pybuilddir.txt
rm -f Lib/lib2to3/*Grammar*.pickle
rm -f Programs/_testembed Programs/_freeze_importlib
find build -type f -a ! -name '*.gc??' -exec rm -f {} ';'
rm -f Include/pydtrace.probes.h
rm -f profile-gen-stamp
make[1]: Entering directory '/home/ty777/python_build/Python-3.10.0'
find . -name '*.gc??' -exec rm -f {} ';'
find . -name '*.profclang?' -exec rm -f {} ';'
find . -name '*.dyn' -exec rm -f {} ';'
rm -f /home/ty777/python_build/Python-3.10.0/coverage.info
rm -f /home/ty777/python_build/Python-3.10.0/lcov-report
rm -f profile-run-stamp
make[1]: Leaving directory '/home/ty777/python_build/Python-3.10.0'
ty777@tyserver:~/python_build/Python-3.10.0$
```

## Now building python again, creating make file using

### ./configure

```
make[1]: Leaving directory '/home/ty777/python_build/Python-3.10.0'
ty777@tyserver:~/python_build/Python-3.10.0$ ./configure \
--prefix=$HOME/.local/python-3.10 \
--enable-optimizations \
--with-ensurepip=install \
--with-sqlite3=$HOME/.local/sqlite3
configure: WARNING: unrecognized options: --with-sqlite3
checking build system type... x86_64-pc-linux-gnu
checking host system type... x86_64-pc-linux-gnu
checking for python3.10... python3.10
checking for --enable-universalsdk... no
checking for --with-universal-archs... no
checking MACHDEP... "linux"
checking for gcc... gcc
checking whether the C compiler works... yes
checking for C compiler default output file name... a.out
checking for suffix of executables...
checking whether we are cross compiling... no
checking for suffix of object files... o
checking whether we are using the GNU C compiler... yes
checking whether gcc accepts -g... yes
checking for gcc option to accept ISO C89... none needed
checking how to run the C preprocessor... gcc -E
checking for grep that handles long lines and -e... /usr/bin/grep
checking for a sed that does not truncate output... /usr/bin/sed
checking for --with-cxx-main=<compiler>... no
```

## Running the make file and installing

```
creating Modules/Setup.local
creating Makefile
ty777@tyserver:~/python_build/Python-3.10.0$ make -j$(nproc)
Running code to generate profile data (this can take a while):
# First, we need to create a clean build with profile generation
# enabled.
make profile-gen-stamp
make[1]: Entering directory '/home/ty777/python_build/Python-3.10.0'
make clean
make[2]: Entering directory '/home/ty777/python_build/Python-3.10.0'
find . -depth -name '__pycache__' -exec rm -rf {} ';'
find . -name '*.py[co]' -exec rm -f {} ';'
find . -name '*.so' -exec rm -f {} ';'
find . -name '*.so.[0-9]*' -exec rm -f {} ';'
find . -name '*.so.[0-9]*.[0-9]*' -exec rm -f {} ';'
find . -name '*.so.[0-9]*.[0-9]*.[0-9]*' -exec rm -f {} ';'
find . -name '*.pyc' -exec rm -f {} ';'
find build -name 'fficonfig.h' -exec rm -f {} ';' || true
find build -name '*.py' -exec rm -f {} ';' || true
find build -name '*.py[co]' -exec rm -f {} ';' || true
rm -f pybuilddir.txt
rm -f Lib/lib2to3/*Grammar*.pickle
rm -f Programs/_testembed Programs/_freeze_importlib
find build -type f -a ! -name '*.gc??' -exec rm -f {} ';'
rm -f Include/pydtrace.probes.h
rm -f profile-gen-stamp
make[3]: Entering directory '/home/ty777/python_build/Python-3.10.0'
find . -name '*.gc??' -exec rm -f {} ';'
find . -name '*.profclang?' -exec rm -f {} ';'
find . -name '*.dyn' -exec rm -f {} ';'
rm -f /home/ty777/python_build/Python-3.10.0/coverage.info
rm -f /home/ty777/python_build/Python-3.10.0/lcov-report
rm -f profile-run-stamp
make[3]: Leaving directory '/home/ty777/python_build/Python-3.10.0'
make[2]: Leaving directory '/home/ty777/python_build/Python-3.10.0'
touch profile-clean-stamp
Building with support for profile generation:
make build all generate profile
```



## Starting label studio

```
(1.0.0)
Requirement already satisfied: ua-parser-builtins in /home/ty777/.local/python-3.10/lib/python3.10/site-packages (from ua-parser==0.10.0->user-agents->django-user-agents==0.4.0->label-studio) (0.18.0.post1)
WARNING: You are using pip version 21.2.3; however, version 25.0 is available.
You should consider upgrading via the '/home/ty777/.local/python-3.10/bin/python3.10 -m pip install --upgrade pip' command.
ty777@tyserver:~/python_build/Python-3.10.6$ $HOME/.local/python-3.10/bin/label-studio start
=> Database and media directory: /home/ty777/.local/share/label-studio
=> Static URL is set to: /static/
=> Database and media directory: /home/ty777/.local/share/label-studio
=> Static URL is set to: /static/
Read environment variables from: /home/ty777/.local/share/label-studio/.env
get 'SECRET_KEY' casted as '<class 'str'>' with default ''
Starting new HTTPS connection (1): pypi.org:443
https://pypi.org:443 "GET /pypi/label-studio/json HTTP/1.1" 200 33651
Initializing database...
January 26, 2025 - 17:53:05
Django version 4.2.18, using settings 'label_studio.core.settings.label_studio'
Starting development server at http://0.0.0.0:8080/
Quit the server with CONTROL-C.
```

```
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C:\Users\tanis>ssh -L 8080:localhost:8080 ty777@localhost
ssh: connect to host localhost port 22: Connection refused

C:\Users\tanis>ssh -L 8080:localhost:8080 ty777@localhost -p 2222
ty777@localhost's password:
Welcome to Ubuntu 24.04.1 LTS (GNU/Linux 6.8.0-51-generic x86_64)

 * Documentation:  https://help.ubuntu.com
 * Management:    https://landscape.canonical.com
 * Support:        https://ubuntu.com/pro

System information as of Sun Jan 26 05:55:57 PM UTC 2025

System load:          0.03
Usage of /:            48.9% of 24.44GB
Memory usage:         31%
Swap usage:           0%
```

