

# ACSE Quick installation guide

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## 1 Requirements

- Windows 10 build 14393 or above.
- The ACSE source code version 1.1.5 or above. This can be provided by your lecturer on the appropriate channels (e.g: BeeP).
- Microsoft Visual Studio Code

## 2 Installation of Windows Subsystem for Linux (WSL) and first setup

In order to provide a clean installation of the required binaries for the compiler to work, without the need to install a complete Virtual Machine on the System or to use the dual boot, the best option is to opt for the WSL. Windows Subsystem for Linux is a lightweight version of a Linux distro under Windows 10 environment. With it, the POSIX syscalls of the virtualized machine are on-the-fly translated into Windows NT system calls.

1. Press  + , type **powershell** and press  +  + . Insert the Administrator password if prompted.

2. Type:

```
Enable-WindowsOptionalFeature -Online -FeatureName Microsoft-Windows-Subsystem-Linux
```

and press . Reboot the computer if asked.

3. Go to the Microsoft Store Application and install a packaged Linux distro. Penguin or Ubuntu are recommended. Once opened the previous installed Linux distro and waited the environment to set up, choose a UNIX username and a password.

4. Install the required packages:

```
sudo apt update && sudo apt install gcc flex bison
```

5. In Windows, open Visual Studio Code and install the Remote - WSL extension. This will prevent you from installing `code` under Linux environment.
6. Download the ACSE archive and unzip it into a handy Linux directory (for example `\home\<YOUR_USER_NAME>`).

Note: in Windows you can use the builtin 9P Virtual Server to access Linux directories. Open Explorer and type `\\wsl$\<YOUR_DISTRO_NAME>` in the search bar (for example: `\\wsl$\Ubuntu`) and press `Enter`.

7. Open the Linux distro App, enter the command `nano $HOME/.bashrc` then add the following line to the file: `PATH=$PATH:<PATH_TO_ACSE_FOLDER>/bin` Press `Ctrl`+`X`, type `Y` and press `Enter` to save.

### 3 Usage

1. Open the Linux distro App and use `cd` to select the `acse` folder (`cd acse_x.x.x/acse`, where `x.x.x` is the version number).
2. Type `code Acse.lex Acse.y` to edit your language functionalities. This will open a new Visual Studio Code window under the Linux context. The output of the builtin Terminal emulator will be from Linux's `bash` and no longer from `cmd`.
3. When finished coding, move to the `acse` root folder (`acse_x.x.x`) and enter the `make` command.

Note: this is required *every time* the source files (including `Acse.lex` and `Acse.y`) are modified, since `acse` binary must be recompiled.

### 4 Testing

To test the compiler, it is suggested to follow the next steps:

1. Create a folder into `acse_x.x.x\tests`, create a `.src` file (containing the source code of the language to test) and place it into that folder.
2. Add the name of the folder to the `dirs` variable into the `tests\Makefile`.
3. Run `make` to compile sources. This is requires every time a source file modification occurs.

Note: after every build, remember to leave only the `*.src` file into the folder and delete everything else. Otherwise `make` will skip that folder.