**xv6 setup guide**

Follow the instructions given below for xv6 installation.

Run the following commands to get the xv6 source (if you are using lab machine)

* wget https://www.cse.iitb.ac.in/~puru/courses/xv6-public.tar.gz
* tar -xf xv6-public.tar.gz
* cd xv6-public
* make

If you are using a Linux environment on a personal machine, you will need a set of other tools as well for xv6 … use the following commands to install required packages.

* sudo apt-get update
* sudo apt -y install build-essential gdb coreutils util-linux sysstat procps wget tar qemu

The booklet describing/listing all source files is available [**here**](https://pdos.csail.mit.edu/6.828/2017/xv6/xv6-rev10.pdf)**.** (also after make in the xv6 dir)

xv6 runs on an x86 emulator called QEMU that emulates x86 hardware on your local machine. In the xv6 folder, run the following command sequence to boot xv6 on an emulated machine. QEMU boots the machine and if all goes well drops to a user space shell program.

* make clean
* make qemu Build everything and start qemu with the VGA console in a new window and the serial console in your terminal. To exit, either close the VGA window or press Ctrl-c or Ctrl-a x in your terminal.
* make qemu-nox

Like make qemu, but run with only the serial console. To exit, press Ctrl-a x. This is particularly useful over SSH connections.

***Ctrl+A X ⇒ First press Ctrl + A (A is just key a, not the alt key), 2. then release the keys and press X***.

* At the shell start with **ls** to list available programs and then execute a few of them.
* Look up the implementation of these programs. For example, cat.c is the source code for the cat program. Execute and lookup the following: ls, cat, wc, echo, grep etc. Understand how the syntax in some places is different from normal C syntax.
* Check the makefile to see how the program wc is set up for compilation.

### **FAQ**

**Q**. make qemu-nox throws this error: "Couldn't find a working QEMU executable"

**Ans**. Sometimes, the default qemu package does not configure itself properly. Try installing the complete set of binaries for x86:

sudo apt install qemu-system-x86

and retry. Alternatively, if you are running Ubuntu directly on your machine (not on a VM/hypervisor), you can also install qemu-kvm

sudo apt install qemu-kvm

Please do not modify xv6-public's source by yourself, this can cause problems.

**Q**. make qemu-nox throws this error: "error: writing 1 byte into a region of size 0 [-Werror=stringop-overflow=]"

**Ans**. Edit makefile and add : CFLAGS += -Wno-stringop-overflow ( [link](https://www.reddit.com/r/ManjaroLinux/comments/p4445x/comment/hv06t00/?utm_source=share&utm_medium=web2x&context=3))