

CS302 Lab1 Report

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1.

```
heza12011323@VM-8-14-ubuntu:~$ cd qemu-5.0.0/  
heza12011323@VM-8-14-ubuntu:~/qemu-5.0.0$
```

username machine name work directory

```
[username]@[machine-name]:[workdir]$ [command]
```

use the `cd` (change directory) command to switch the path, for example:

```
cd /     # to root  
cd ..    # move up one dir  
cd ~     # to user's home dir  
cd -     # to the previous dir
```

2.

```
heza12011323@VM-8-14-ubuntu:~$ touch a  
heza12011323@VM-8-14-ubuntu:~$ ls  
a    qemu-5.0.0  
heza12011323@VM-8-14-ubuntu:~$ mv a b  
heza12011323@VM-8-14-ubuntu:~$ ls  
b    qemu-5.0.0
```

```
mv [oldname] [newname]
```

3.

```
heza12011323@VM-8-14-ubuntu:~/tmp$ touch a.c b.c c.cpp  
heza12011323@VM-8-14-ubuntu:~/tmp$ ls  
a.c  b.c  c.cpp  
heza12011323@VM-8-14-ubuntu:~/tmp$ find . -name "*.c"  
./b.c  
./a.c  
heza12011323@VM-8-14-ubuntu:~/tmp$ find *.c  
a.c  
b.c
```

```
find . -name "*.c"     # spec dir  
find *.c              # equivalent
```

4.

```
heza12011323@VM-8-14-ubuntu:~/tmp$ chmod 537 test.txt  
heza12011323@VM-8-14-ubuntu:~/tmp$ ls -l  
total 0  
-r-x-wxrw 1 heza12011323 heza12011323 0 Feb 16 23:27 test.txt
```

Treat 537 as octal form, we can transform it to binary as 101 011 111, which is corresponding to the previledge r-x-wxrwx

- for *current user* and *owner*, it is *readable, non-writable, executable*
- for *group*, it is *non-readable, writable, executable*
- for *other*, it is *readable, writable, executable*

```
heza12011323@VM-8-14-ubuntu:~/tmp$ cat loop.c
int main() {
    while (1) {
    }
    return 0;
}

heza12011323@VM-8-14-ubuntu:~/tmp$ gcc loop.c && ./a.out
^Z
[1]  Stopped                  ./a.out
heza12011323@VM-8-14-ubuntu:~/tmp$
heza12011323@VM-8-14-ubuntu:~/tmp$
heza12011323@VM-8-14-ubuntu:~/tmp$
heza12011323@VM-8-14-ubuntu:~/tmp$
heza12011323@VM-8-14-ubuntu:~/tmp$ fg 1
./a.out
^C
heza12011323@VM-8-14-ubuntu:~/tmp$
```

use ctrl+z to pause the process

fg + job_id to recover the job

use ctrl-c to terminate the process

```
heza12011323@VM-8-14-ubuntu:~$ qemu-system-riscv64 --machine virt --nographic --bios default
```

OpenSBI v0.6

```

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          |_|

```

Platform Name : QEMU Virt Machine
Platform HART Features : RV64ACDFIMSU
Platform Max HARTs : 8
Current Hart : 0
Firmware Base : 0x80000000
Firmware Size : 120 KB
Runtime SBI Version : 0.2

MIDELEG : 0x0000000000000222
MEDELEG : 0x000000000000b109
PMP0 : 0x0000000080000000-0x000000008001ffff (A)
PMP1 : 0x0000000000000000-0xffffffffffffffff (A,R,W,X)

QEMU: Terminated

```
heza12011323@VM-8-14-ubuntu:~$
```

after correctly configed the `PATH`, simply use the below command to run a riscv64 VM without graphic card.

```
gemu-system-riscv64 --machine virt --nographic --bios default
```

7. use `ctrl+a+x` command to terminate/quit the qemu VM.

```

Heza12011323@VM-8-14-ubuntu:~$ riscv64-unknown-elf-gcc -v
Using built-in specs.
COLLECT_LTO_WRAPPER=/usr/lib/gcc/riscv64-unknown-elf/9.3.0/lto-wrapper
Target: riscv64-unknown-elf
Configured with: ../configure --build=x86_64-linux-gnu --prefix=/usr --includedir=/usr/include --mandir=/usr/share/man --infodir=/usr/share/info --sysconfdir=/etc --localstatedir=/var
--disable-silent-rules --libdir=/usr/lib/x86_64-linux-gnu --libexecdir=/usr/lib/x86_64-linux-gnu --disable-maintainer-mode --disable-dependency-tracking --target=riscv64-unknown-elf
--prefix=/usr --infodir=/usr/share/doc/gcc-riscv64-unknown-elf/info --mandir=/usr/share/man --htmldir=/usr/share/doc/gcc-riscv64-unknown-elf/html --pdfdir=/usr/share/doc/gcc-riscv64-unknown-elf/pdf --bindir=/usr/bin --libexecdir=/usr/lib --libdir=/usr/lib --with-pkgversion= --disable-shared --disable-threads --enable-languages=c,c++ --enable-tls --with-newlib --with-native-system-header-dir=/include --disable-libmudflap --disable-lbssp --disable-libquadmath --disable-ltng --disable-nls --with-system-zlib --enable-checking=yes --enable-multilib --with-abi=elf --disable-lto --enable-lto --disable-lto --disable-lto --with-arch=rv64imafdc --with-gnu-as --with-gnu-ld --with-icc=/usr/lib/riscv64-unknown-elf/bin/as --with-ld=/usr/lib/riscv64-unknown-elf/bin/ld AR_FOR_TARGET=/usr/lib/riscv64-unknown-elf/bin/ar AS_FOR_TARGET=/usr/lib/riscv64-unknown-elf/bin/as NM_FOR_TARGET=/usr/lib/riscv64-unknown-elf/bin/nm LD_FOR_TARGET=/usr/lib/riscv64-unknown-elf/bin/ld OBJDUMP_FOR_TARGET=/usr/lib/riscv64-unknown-elf/bin/objdump RANLIB_FOR_TARGET=/usr/lib/riscv64-unknown-elf/bin/ranlib READELF_FOR_TARGET=/usr/lib/riscv64-unknown-elf/bin/readelf STRIP_FOR_TARGET=/usr/lib/riscv64-unknown-elf/bin/strip CFLAGS=-g -O2 -fdebug-prefix-map=/build/gcc-riscv64-unknown-elf-3se3sn/gcc-riscv64-unknown-elf-9.3.0, -fs
tack-protector-strong CPPFLAGS=-Wdate-time -D_FORTIFY_SOURCE=2 CXFLAGS=-g -O2 -fdebug-prefix-map=/build/gcc-riscv64-unknown-elf-3se3sn/gcc-riscv64-unknown-elf-9.3.0, -fstack-protector-strong FCFLAGS=-g -O2 -fdebug-prefix-map=/build/gcc-riscv64-unknown-elf-3se3sn/gcc-riscv64-unknown-elf-9.3.0, -fstack-protector-strong FFLAGS=-g -O2 -fdebug-prefix-map=/build/gcc-riscv64-unknown-elf-3se3sn/gcc-riscv64-unknown-elf-9.3.0, -fstack-protector-strong GCJFLAGS=-g -O2 -fdebug-prefix-map=/build/gcc-riscv64-unknown-elf-3se3sn/gcc-riscv64-unknown-elf-9.3.0, -fstack-protector-strong LDLAGS=-Wl,-Bsymbolic-functions -Wl,-z,relro -Wl,-z,now OBJCFLAGS=-g -O2 -fdebug-prefix-map=/build/gcc-riscv64-unknown-elf-3se3sn/gcc-riscv64-unknown-elf-9.3.0, -fstack-protector-strong OBJCXXFLAGS=-g -O2 -fdebug-prefix-map=/build/gcc-riscv64-unknown-elf-3se3sn/gcc-riscv64-unknown-elf-9.3.0, -fstack-protector-strong CXXFLAGS_FOR_TARGET=-Os -mmodel=medany CXFLAGS_FOR_TARGET=-Os -mmodel=medany
Thread model: single
gcc version 9.3.0 ()

```

9. The report should be submitted in *pdf* format. The first time a report is submitted in other format, it

will be treated as a normal report and be graded, but after that, the report will be graded as zero.

10. Plagiarism is not allowed. The penalties below will be applied to **both** plagiarist and plagiarized once caught:

- If an undergraduate assignment is found to be plagiarized, the first time the score of the assignment will be 0.
- The second time the score of the course will be 0.
- Cannot receive any recommendation for postgraduate admission exam exemption and all other academic awards...