

COMP3500 – Frequently Asked Questions

Project 2 – An Introduction to OS/161

1. Some of the files aren't in the files section, and we can't see the discussion you showed in class today. The files are:

cross compiler: `cs161-gcc-1.5.tar`

special gdb: `cs161-gdb-1.5.tar`

neither of those are there. also, how do we install them after we install the os and tool chain?

Answer: The above two files are available from the public folder of my dropbox.

Download `cs161-gcc-1.5.tar` from:

<https://dl.dropboxusercontent.com/u/24238235/cs161-gcc-1.5.tgz>

Download `cs161-gdb-1.5.tar` from:

<https://dl.dropboxusercontent.com/u/24238235/cs161-gdb-1.5.tgz>

The instruction on how to install the above two packages can be found in "The MIPS toolchain for os161.txt". Run the `tar` command to unzip the tarred and compressed file. Then, change to the directory where you just unzipped the files. Last, run `./toolbuild.sh`

2. Why I could not compile my os161?

Answer: If you do not complete the four steps described in Sections 4.2.1-4.2.4, you will not be able to compile OS161. Please build the tool chain, cross compiler, special gdb, and the sys161 emulator first before compiling your os161.

3. While trying to configure the `cs161-gdb` for Project 2 we are encountering a build error: "no termcap library found". We built the various libraries in the correct order and even wiped the libraries and rebuilt them to no success. Is there any advice you could give us for solving this error?

Answer: This problem can be solved by installing `ncurses-dev`. The distro came installed with `ncurses-lib`, which was not enough.

4. When I try to run make depend to make the kernel, I get the following error:

```
/bin/sh: cs161-gcc: command not found
make: *** [depend] Error 127
```

What should I do to fix this?

Answer: See also Question 2.

5. When I tried to run cs161-gdb to debug my os161 kernel, I encountered the following error message:

```
warning: unrecognized item "timeout" in "qSupported"
response.
```

How to fix this problem?

Answer: The sys161 you installed is incompatible with your cs161-gdb. Please download the correct versions for the tool chain as follows:

- 1) OS/161: os161-1.10.tar.gz
- 2) tool chain: cs161-binutils-1.4.tar
- 3) cross compiler: cs161-gcc-1.5.tar
<https://dl.dropboxusercontent.com/u/24238235/cs161-gcc-1.5.tgz>
- 4) special gdb: cs161-gdb-1.5.tar
<https://dl.dropboxusercontent.com/u/24238235/cs161-gdb-1.5.tgz>
- 5) sys161 MIPS emulator: sys161-1.14.tar
<https://dl.dropboxusercontent.com/u/24238235/sys161-1.14.tar.gz>

Please build and install sys161 version 1.14 instead of version 1.12.

6. I keep getting "command not found" error when I try "sys161 - kernel" in the cs161/root. I get this same error when I try to run "cs161-gdb kernel" in the run window. I noticed that ~cs161/bin has cs161-gcc but it doesn't contain cs161-gdb. I don't know if that should be there or not.

Answer: If cs161-gdb is not in ~/cs161/bin, then you have not yet successfully compiled and built the cs161-gdb debugger. You must build cs161-gdb first before running cs161-gdb.

7. When I tried to use the tar command to create, I had the following error message:
tar: Cowardly refusing to create an empty archive.

Answer: Do not forget to put a dot (i.e., .) at the end of the following command.

```
% tar vfcz <group_ID>_asst0.tgz .
```

If you ignore the dot, you will fail in creating a tarball.

8. In step 10.8, we are asked to add debugging messages. How can we add debug messages?

Answer: You print debug messages to the console using the DEBUG() macro. A sample source code is given below:

```
DEBUG(DB_VM, "VM free pages: %u\n", free_pages);
```

In the above code, DB_VM is a flag defined in src/kern/include/lib.h

If the debug DB_VM flag is set, the debug message will be printed on the console.