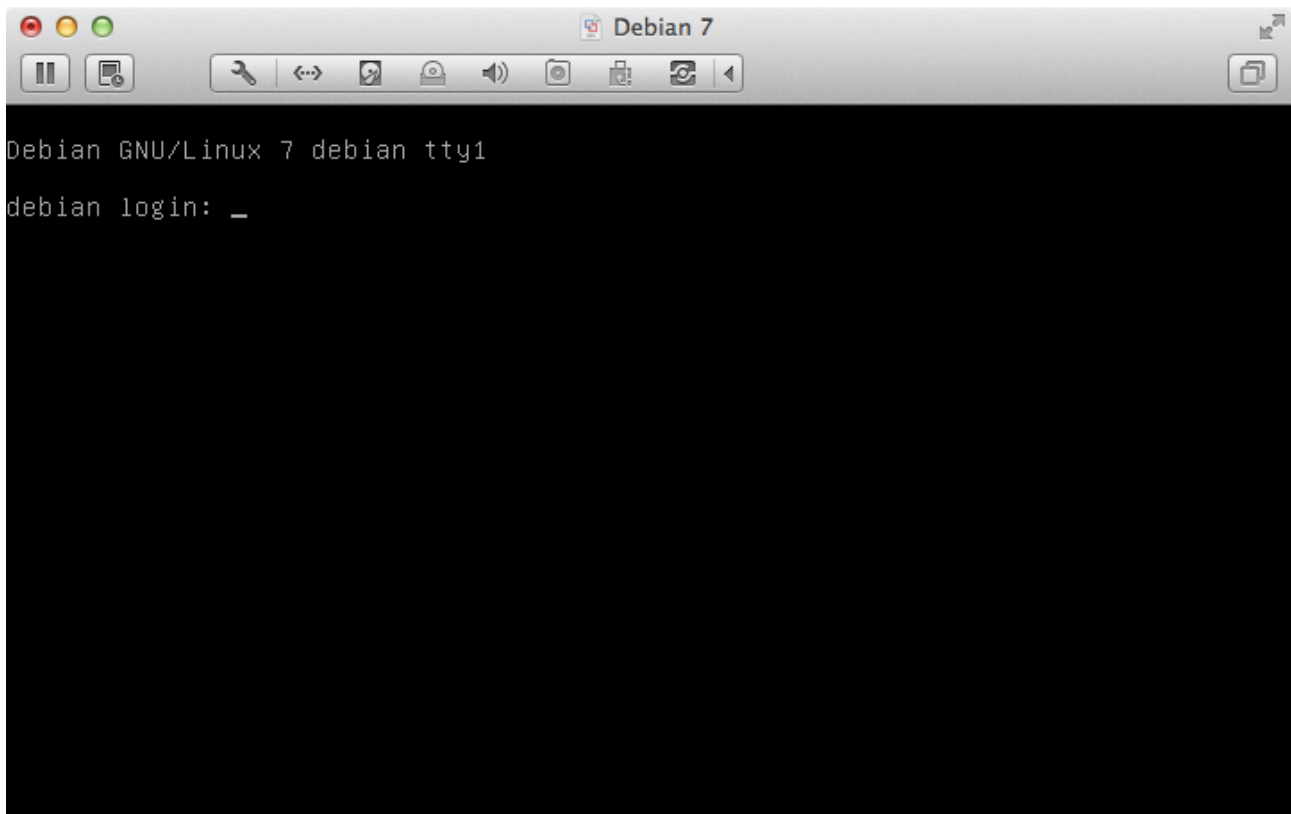


Experiment Report For PA0

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1. Install VM and Debian
2. First Exploration with Debian



- Q:Why Windows is quite "fat"?
 - There is no GUI in Debian. Images can require more memory than other files such as binary files. Windows contain a well-built GUI which makes it very fat.
- Q:Why executing the poweroff command requires superuser privilege?
 - It may damage the system if someone force it shutdown while updating.

A screenshot of a terminal window titled "Debian 7". The terminal shows a user configuring the network interface eth1 with DHCP. After several blank lines, the user runs the command "ping 202.119.32.7". The output shows five successful pings with varying response times. A Ctrl-C (^C) signal is entered, followed by the command "--- 202.119.32.7 ping statistics ---". The final output displays the statistics: 5 packets transmitted, 5 received, 0% packet loss, time 4008ms, and rtt min/avg/max/mdev = 7.743/12.747/16.575/3.075 ms.

```
12 iface eth1 inet dhcp
~
~
~
~
~
~
~
~
~
~
<network/interfaces[R0] [FORMAT=unix] [TYPE=CONF] [POS=1,1] [8%] 08/09/14 - 16:37
smartwsw@debian:~$ ping 202.119.32.7
PING 202.119.32.7 (202.119.32.7) 56(84) bytes of data:
64 bytes from 202.119.32.7: icmp_req=1 ttl=128 time=11.0 ms
64 bytes from 202.119.32.7: icmp_req=2 ttl=128 time=7.74 ms
64 bytes from 202.119.32.7: icmp_req=3 ttl=128 time=13.6 ms
64 bytes from 202.119.32.7: icmp_req=4 ttl=128 time=14.7 ms
64 bytes from 202.119.32.7: icmp_req=5 ttl=128 time=16.5 ms
^C
--- 202.119.32.7 ping statistics ---
5 packets transmitted, 5 received, 0% packet loss, time 4008ms
rtt min/avg/max/mdev = 7.743/12.747/16.575/3.075 ms
smartwsw@debian:~$
```

- 'sources.list' after v.

```

1 #
2
3 # deb cdrom:[Debian GNU/Linux 7.6.0 _Wheezy_ - Official i386 NETINST Binary]
4
5
6 # Line commented out by installer because it failed to verify:
7 #deb http://security.debian.org/ wheezy/updates main
8 # Line commented out by installer because it failed to verify:
9 #deb-src http://security.debian.org/ wheezy/updates main
10
11 # wheezy-updates, previously known as 'volatile'
12 # A network mirror was not selected during install. The following entries
13 # are provided as examples, but you should amend them as appropriate
14 # for your mirror of choice.
15 #
16 # deb http://ftp.debian.org/debian/ wheezy-updates main
17 # deb-src http://ftp.debian.org/debian/ wheezy-updates main
18
19 deb http://mirrors.163.com/debian/ wheezy main contrib non-free
20 deb http://ftp.cn.debian.org/debian/ wheezy main contrib non-free
21
~
~
<sources.list[RO] [FORMAT=unix] [TYPE=DEBSOURCES] [POS=1,1] [4%] 08/09/14 - 16:43
"/etc/apt/sources.list" [readonly] 21L, 822C

```

4. Installing More Tools

- file 'sudoers' after modification

```

#
# This file MUST be edited with the 'visudo' command as root.
#
# Please consider adding local content in /etc/sudoers.d/ instead of
# directly modifying this file.
#
# See the man page for details on how to write a sudoers file.
#
Defaults        env_reset
Defaults        mail_badpass
Defaults        secure_path="/usr/local/sbin:/usr/local/bin:/usr/sbin:/usr/bin:/
sbin:/bin"

# Host alias specification

# User alias specification

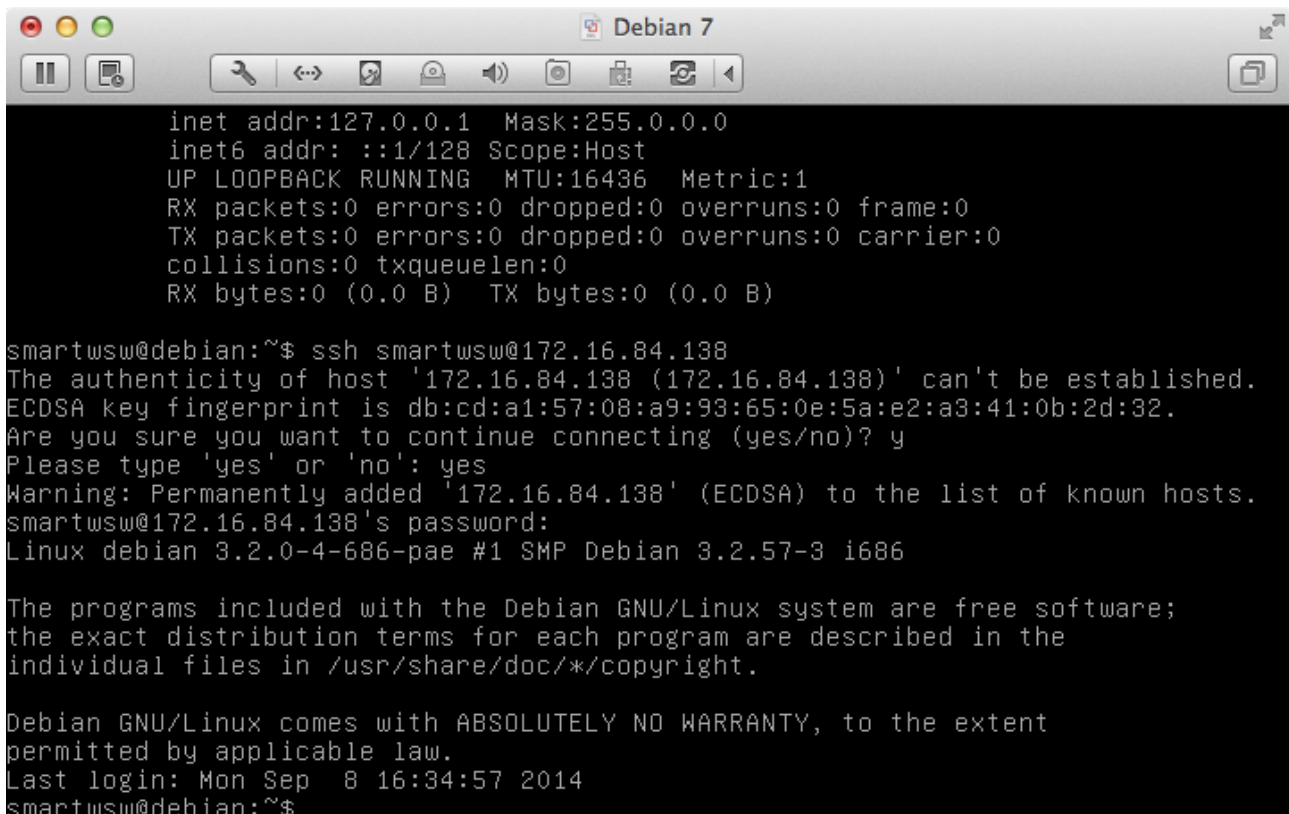
# Cmnd alias specification

# User privilege specification
root    ALL=(ALL:ALL) ALL
smartwsw ALL=(ALL:ALL) ALL

# Allow members of group sudo to execute any command
"/etc/sudoers" [readonly] 28L, 698C
1,1
Top

```

- Q: Why use sudo instead of su?
 - Always stay in su mode may cause terrible troubles. Such as you may remove all the system with the command rm.
- SSH login



```

Debian 7

inet addr:127.0.0.1  Mask:255.0.0.0
inet6 addr: ::1/128 Scope:Host
UP LOOPBACK RUNNING  MTU:16436  Metric:1
RX packets:0 errors:0 dropped:0 overruns:0 frame:0
TX packets:0 errors:0 dropped:0 overruns:0 carrier:0
collisions:0 txqueuelen:0
RX bytes:0 (0.0 B)  TX bytes:0 (0.0 B)

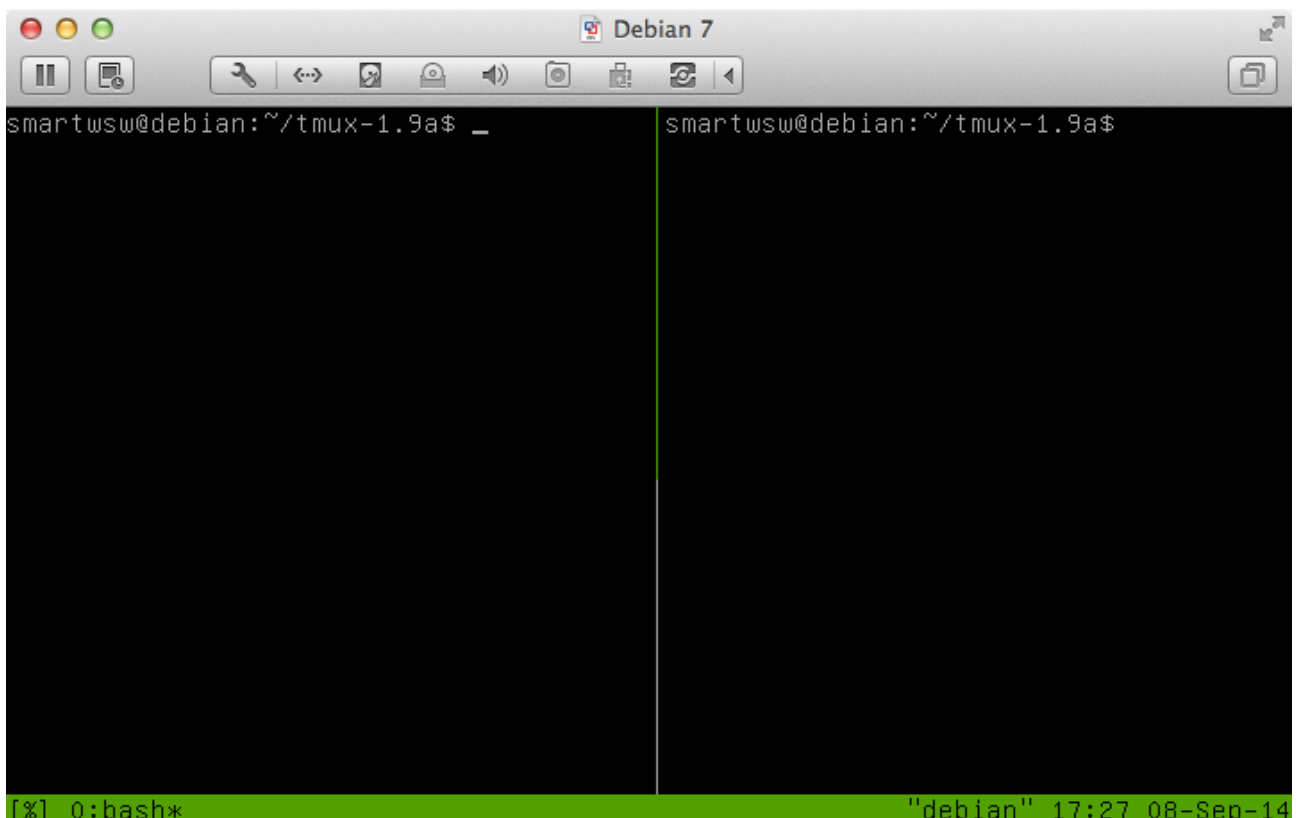
smartwsw@debian:~$ ssh smartwsw@172.16.84.138
The authenticity of host '172.16.84.138 (172.16.84.138)' can't be established.
ECDSA key fingerprint is db:cd:a1:57:08:a9:93:65:0e:5a:e2:a3:41:0b:2d:32.
Are you sure you want to continue connecting (yes/no)? y
Please type 'yes' or 'no': yes
Warning: Permanently added '172.16.84.138' (ECDSA) to the list of known hosts.
smartwsw@172.16.84.138's password:
Linux debian 3.2.0-4-686-pae #1 SMP Debian 3.2.57-3 i686

The programs included with the Debian GNU/Linux system are free software;
the exact distribution terms for each program are described in the
individual files in /usr/share/doc/*/copyright.

Debian GNU/Linux comes with ABSOLUTELY NO WARRANTY, to the extent
permitted by applicable law.
Last login: Mon Sep  8 16:34:57 2014
smartwsw@debian:~$ _

```

- Tmux



```

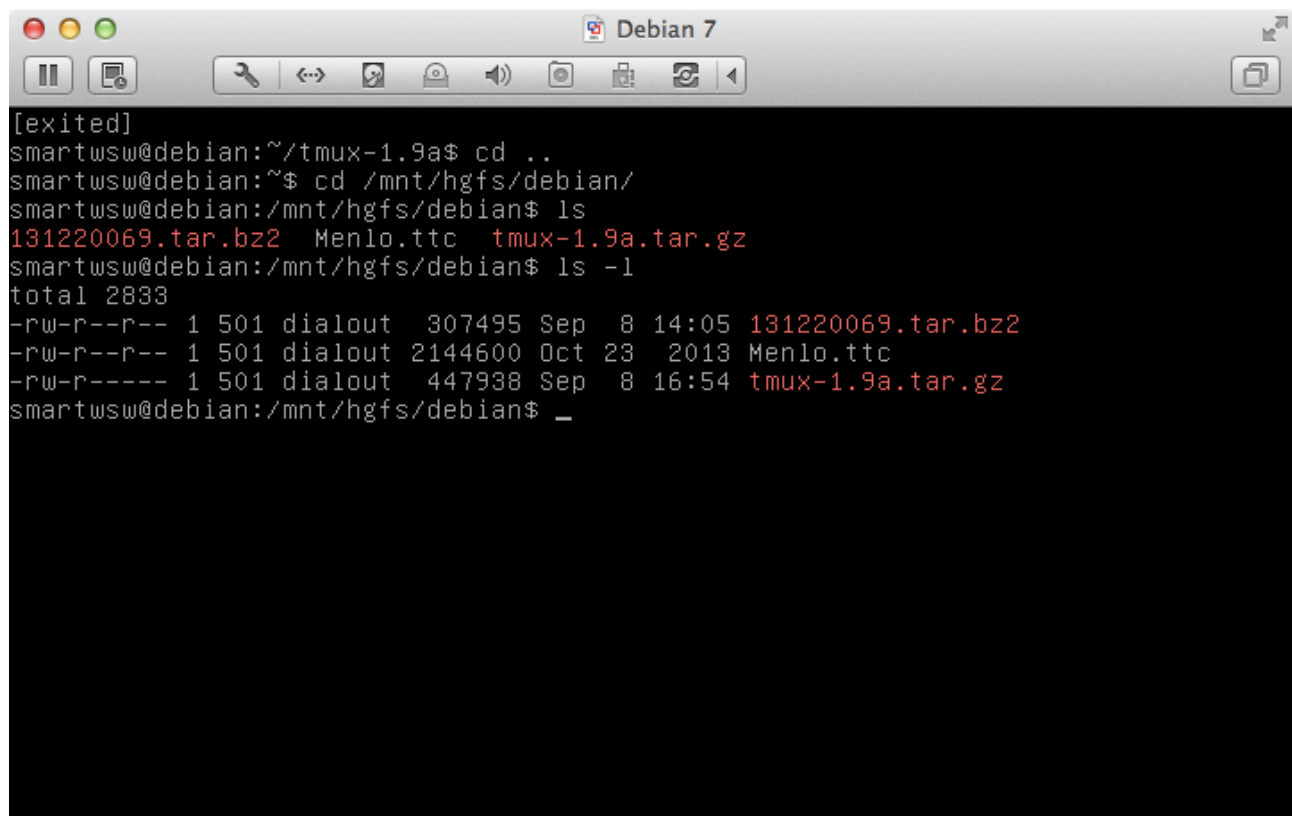
Debian 7

smartwsw@debian:~/tmux-1.9a$ _
smartwsw@debian:~/tmux-1.9a$

[0] 0: bash* "debian" 17:27 08-Sep-14

```

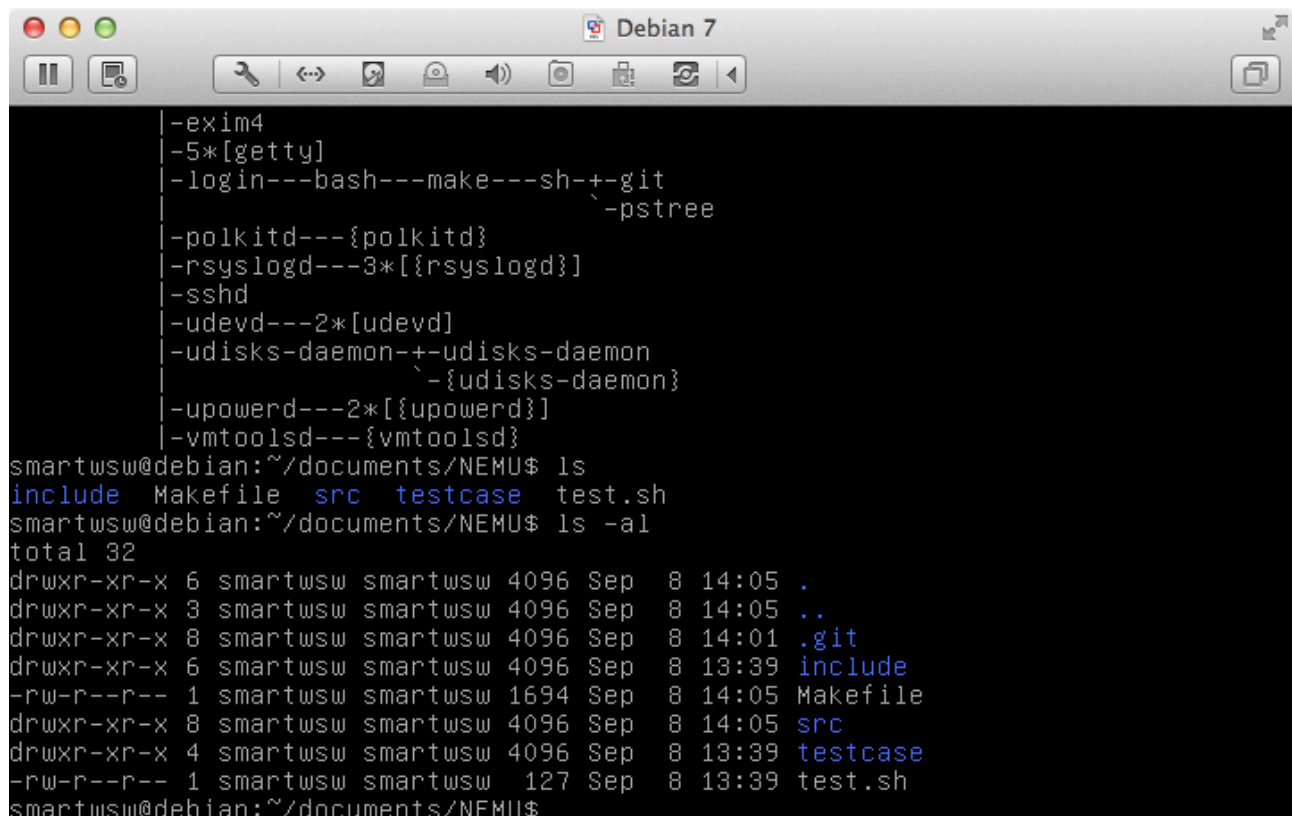
5. Configuring Shared Folders



```
[exited]
smartwsw@debian:~/tmux-1.9a$ cd ..
smartwsw@debian:~$ cd /mnt/hgfs/debian/
smartwsw@debian:/mnt/hgfs/debian$ ls
131220069.tar.bz2  Menlo.ttc  tmux-1.9a.tar.gz
smartwsw@debian:/mnt/hgfs/debian$ ls -l
total 2833
-rw-r--r-- 1 501 dialout 307495 Sep  8 14:05 131220069.tar.bz2
-rw-r--r-- 1 501 dialout 2144600 Oct 23 2013 Menlo.ttc
-rw-r----- 1 501 dialout 447938 Sep  8 16:54 tmux-1.9a.tar.gz
smartwsw@debian:/mnt/hgfs/debian$ _
```

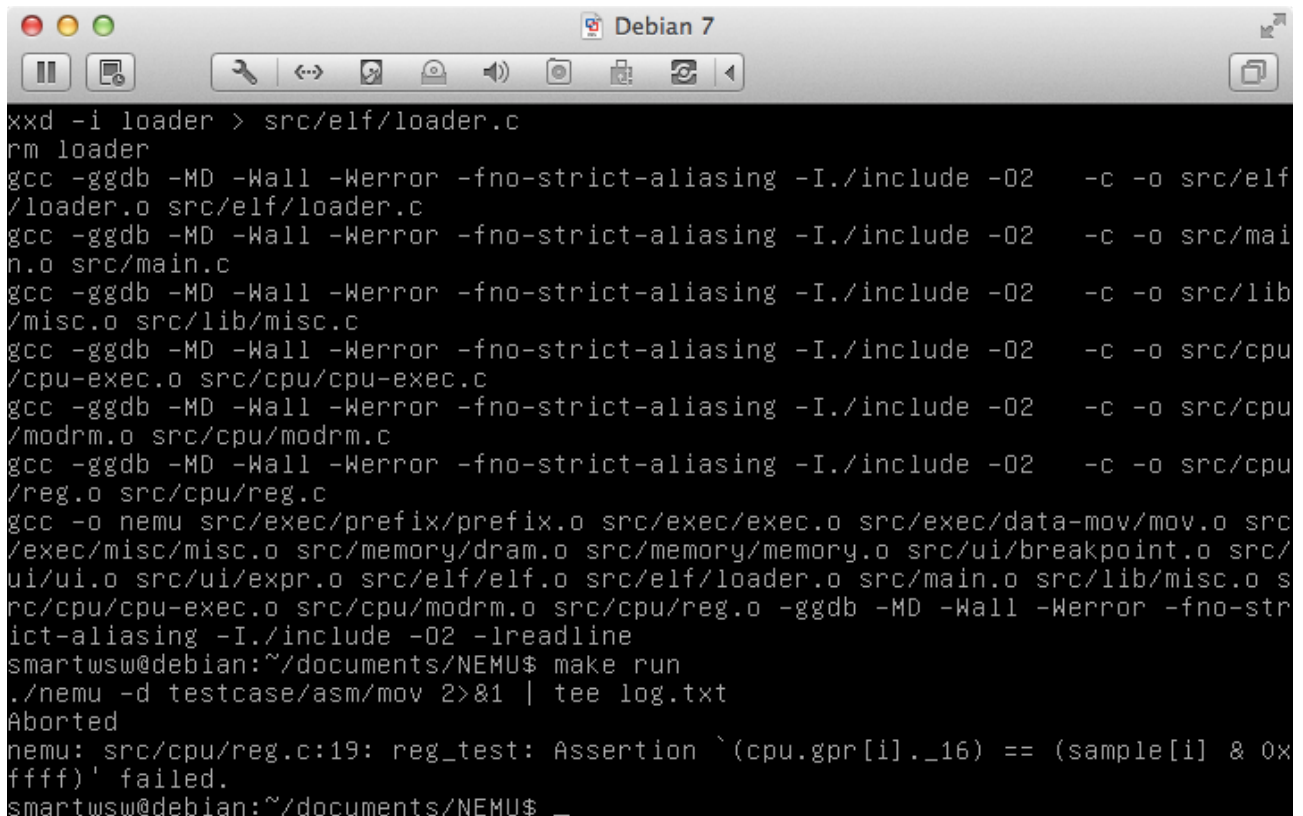
6. Acquiring Source Code for PA

- Files after git clone



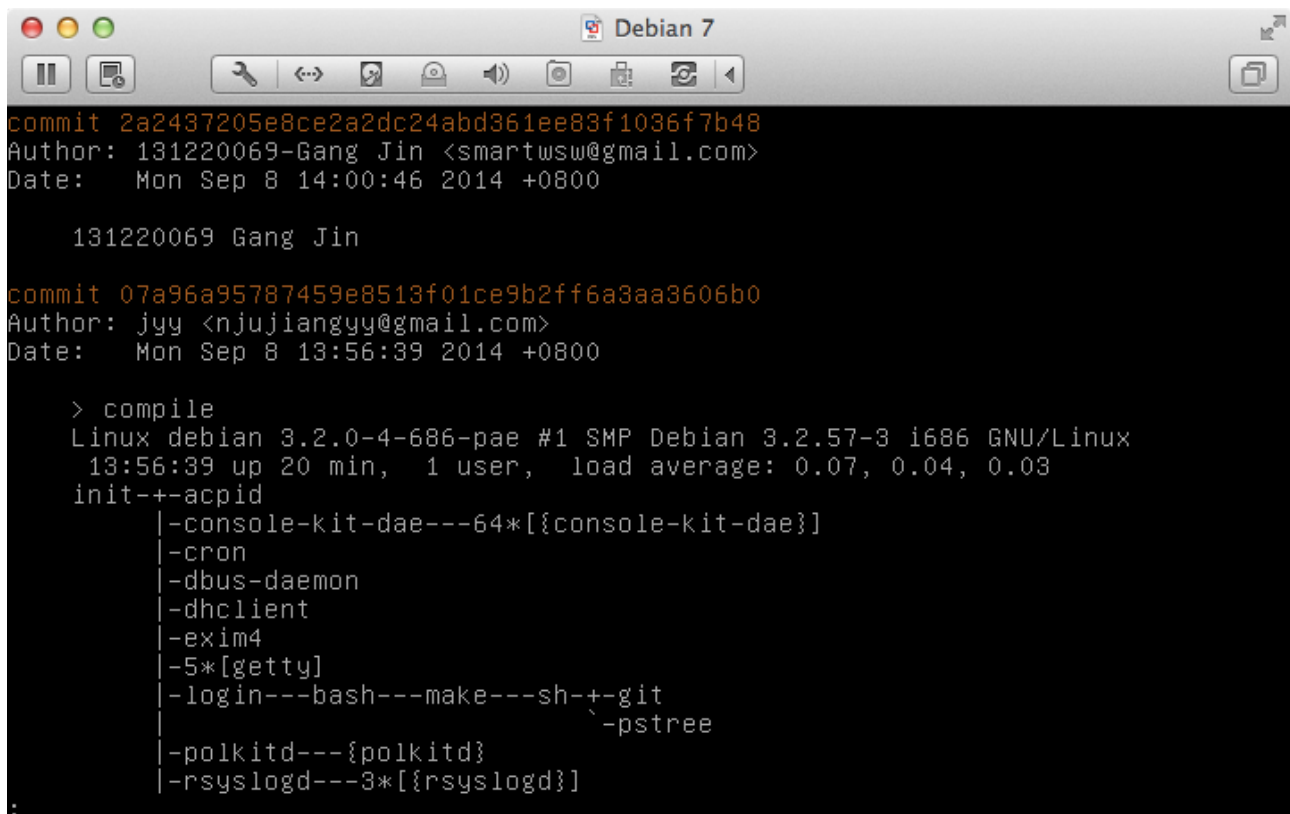
```
-exim4
-5*[getty]
-login---bash---make---sh-+-git
                                \-pstree
-polkitd---{polkitd}
-rsyslogd---3*[{rsyslogd}]
-sshd
-udevd---2*[udevd]
-udisks-daemon-+-udisks-daemon
                \-{udisks-daemon}
-upowerd---2*[{upowerd}]
-vmtoolsd---{vmtoolsd}
smartwsw@debian:~/documents/NEMU$ ls
include  Makefile  src  testcase  test.sh
smartwsw@debian:~/documents/NEMU$ ls -al
total 32
drwxr-xr-x 6 smartwsw smartwsw 4096 Sep  8 14:05 .
drwxr-xr-x 3 smartwsw smartwsw 4096 Sep  8 14:05 ..
drwxr-xr-x 6 smartwsw smartwsw 4096 Sep  8 14:01 .git
drwxr-xr-x 6 smartwsw smartwsw 4096 Sep  8 13:39 include
-rw-r--r-- 1 smartwsw smartwsw 1694 Sep  8 14:05 Makefile
drwxr-xr-x 8 smartwsw smartwsw 4096 Sep  8 14:05 src
drwxr-xr-x 4 smartwsw smartwsw 4096 Sep  8 13:39 testcase
-rw-r--r-- 1 smartwsw smartwsw 127 Sep  8 13:39 test.sh
smartwsw@debian:~/documents/NEMU$ _
```

- After 'make run'.



```
xxd -i loader > src/elf/loader.c
rm loader
gcc -ggdb -MD -Wall -Werror -fno-strict-aliasing -I./include -O2 -c -o src/elf/loader.o src/elf/loader.c
gcc -ggdb -MD -Wall -Werror -fno-strict-aliasing -I./include -O2 -c -o src/main.o src/main.c
gcc -ggdb -MD -Wall -Werror -fno-strict-aliasing -I./include -O2 -c -o src/lib/misc.o src/lib/misc.c
gcc -ggdb -MD -Wall -Werror -fno-strict-aliasing -I./include -O2 -c -o src/cpu/cpu-exec.o src/cpu/cpu-exec.c
gcc -ggdb -MD -Wall -Werror -fno-strict-aliasing -I./include -O2 -c -o src/cpu/modrm.o src/cpu/modrm.c
gcc -ggdb -MD -Wall -Werror -fno-strict-aliasing -I./include -O2 -c -o src/cpu/reg.o src/cpu/reg.c
gcc -o nemu src/exec/prefix/prefix.o src/exec/exec.o src/exec/data-mov/mov.o src/exec/misc/misc.o src/memory/dram.o src/memory/memory.o src/ui/breakpoint.o src/ui/ui.o src/ui/expr.o src/elf/elf.o src/elf/loader.o src/main.o src/lib/misc.o src/cpu/cpu-exec.o src/cpu/modrm.o src/cpu/reg.o -ggdb -MD -Wall -Werror -fno-strict-aliasing -I./include -O2 -lreadline
smartwsw@debian:~/documents/NEMU$ make run
./nemu -d testcase/asm/mov 2>&1 | tee log.txt
Aborted
nemu: src/cpu/reg.c:19: reg_test: Assertion `(cpu.gpr[i] >= 16) == (sample[i] & 0xffff)' failed.
smartwsw@debian:~/documents/NEMU$ _
```

- git log



```
commit 2a2437205e8ce2a2dc24abd361ee83f1036f7b48
Author: 131220069-Gang Jin <smartwsw@gmail.com>
Date: Mon Sep 8 14:00:46 2014 +0800

    131220069 Gang Jin

commit 07a96a95787459e8513f01ce9b2ff6a3aa3606b0
Author: jyy <njujiangyy@gmail.com>
Date: Mon Sep 8 13:56:39 2014 +0800

    > compile
    Linux debian 3.2.0-4-686-pae #1 SMP Debian 3.2.57-3 i686 GNU/Linux
    13:56:39 up 20 min, 1 user, load average: 0.07, 0.04, 0.03
    init--acpid
    | -console-kit-dae---64*[{console-kit-dae}]
    | -cron
    | -dbus-daemon
    | -dhclient
    | -exim4
    | -5*[getty]
    | -login---bash---make---sh-+-git
    | | -pstree
    | -polkitd---{polkitd}
    | -rsyslogd---3*[{rsyslogd}]
    .
    _
```