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COEN177L - Thursday 5:15PM
Lab 6

Guide to Modifying the Minix Kernel

Prerequisite: must have vmware on ECC linux systems and access to these systems (NoMachine).

Virtual Machine Setup

1. Open up a terminal window on the ECC linux lab computer.
2. At the prompt, type in: **setup vmware** to prepare the vmware software.
    a. This only needs to be done the first time you login to your machine each time.
3. Next, type in: **minix-get-image** to get a copy of the minix system image.
    a. This will completely erase any pre-existing old images (use this to restore the system if you break it).
4. Next, type in: **vmware &** to start the vmware software with the minix system image.
5. Once vmware starts, select the minix image and "power" on the virtual machine.
6. After the minix system boots and the command line becomes available, enter **root** as the username when prompted.
7. Next, type the command **passwd** and then enter your selected passcode when prompted.

FTP Setup

1. In the minix system, type in: **tcpd ftp /usr/bin/in.tfpd &** to launch the FTP daemon which will allow the local system to connect to the virtual machine system.
2. Next, type in: **ifconfig** to get the IP address of the VM.
3. Open up a terminal window on your local machine (if it wasn't already open) and using the VM's IP address, enter the command: **ftp <VM's IP address>** to launch ftp on the local machine.
4. When prompted, enter your username (*root*) and password for the VM.

Modifying Kernel Source Code

1. On the local machine terminal window in ftp, go to the directory where the VM's kernel source code is by entering the command: **cd /usr/src/kernel**.
2. Once in that directory, locate the file titled **main.c**.
3. Make sure that on your local machine you are in the directory that you want the files transferred to by entering: **lcd** to check the current location.
    a. Enter **lcd <directory path>** to change location on the local machine.
4. Enter: **get main.c** to transfer the file from the VM to the local machine.
5. On the local machine, open **main.c** with the text editor of your choice and locate the private function *announce* at line 268.

```
/*===========================================================================*
 *                                announce                                   *
 *===========================================================================*/
PRIVATE void announce(void)
{
  /* Display the MINIX startup banner. */
  printf("\nMINIX %s.%s. "
#ifdef _SVN_REVISION
         "(" _SVN_REVISION ")\n"
#endif
       "Copyright 2010, Vrije Universiteit, Amsterdam, The Netherlands\n",
       OS_RELEASE, OS_VERSION);
  printf("MINIX is open source software, see http://www.minix3.org\n");
}
```

6. As shown in the above screenshot, change the copyright line to whatever you want and then save the file.
7. Next, back on the local machine terminal with ftp, type in **put main.c** to transfer the modified file back to the VM in the directory */usr/src/kernel*.
    a. This will overwrite the main.c file that was previously in that directory.
8. Return to the minix system on the VM and navigate to the **/usr/src** directory. Type in **make world** to rebuild minix with your changes.
9. Once this process is done, enter **reboot** to restart the minix system.
    a. If the system crashes, restart this guide at step 3 in the “Virtual Machine Setup” section.
10. If nothing went wrong, then you should see your custom statement in place of the copyright statement during the boot process.