

Root File System (RFS) Customization

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This document guides the user through

1. Change the hostname
2. Change the SSH login message
3. Run a program when logging into the target

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Formatting

1. Commands for the host Linux's console are show as:
`(host)$ echo "Hello PC world!"`
2. Commands for the target (BeagleBone) Linux's console are shown as:
`(bbg)$ echo "Hello embedded world!"`
3. Almost all commands are case sensitive.

Revision History

- Jan 16, 2024: Initial version for class

1. Change Target Hostname

The `hostname` is the name given to a device on a network. It is displayed in the terminal during SSH. We'll customize it here to uniquely identify your board.

1. View what the `/etc/hostname` file currently contains and make a backup copy (just in case):

```
(bbg)$ cd /etc  
(bbg)$ cat hostname  
(bbg)$ sudo cp hostname ~/hostname.bak
```
2. Overwrite the `/etc/hostname` file's contents with: `yourSFUEmailAddress-beagle`
Example: `bfraser-beagle`
 - `hostname` is owned by the root user, so you need to use `sudo` to edit it:

```
(bbg)$ sudo nano hostname
```


or you could use the following:

```
(bbg)$ echo yourMessage | sudo tee hostname
```
3. Update the `hosts` file to the new `hostname`:
 - Edit `hosts` file

```
(bbg)$ sudo nano /etc/hosts
```
 - Change all mention of `BeagleBone` to `yourSFUEmailAddress-beagle`
4. This will change the board's Linux terminal prompt once you reboot the board. Reboot using the command:

```
(bbg)$ sudo reboot
```

2. Configure SSH Login Message

When you successfully log into the target (via SSH or serial), Linux displays to you the contents of `/etc/motd`. Here we will customize it.¹

1. Create a short ASCII message:
 - Create a brief ASCII message using a website such as: <http://patorjk.com/software/taag/>
 - Make the message include at least your first name. You may add anything else you like.
Suggestion: Make it a positive message, like "Welcome Brian!"
 - Pick a "font" which is readable and would fit on the terminal screen.
For the above website, click the "Test All" link on the left and pick a good one.
2. On the host, create the plain-text file:

```
(host)$ gedit ~/cmpt433/public/motd
```


Copy-and-paste your above art into this file and save it.
3. On the target, via the public NFS folder, copy the issue file to `/etc/motd`.

¹ When connecting via the serial port, Linux will first show you `/etc/issue` before logging in.

3. Run program on log-in

When you successfully log in, Linux will run your `.profile` file. This file can be edited to include launching other programs.

1. On the host, copy your executable to the public NFS folder (`~/cmpt433/public`) if it is not there already.
2. On the target, mount the public NFS folder (see NFS guide).
3. On the target, copy your executable program to `debian` user's home directory (`~`)

```
(bbg)$ cp /mnt/remote/someFileName ~
```

 - This will make it available on the target even if your NFS shared folder is not yet mounted.
4. On the target, edit the `.profile` file:

```
(bbg)$ nano ~/.profile
```

 - The `.profile` file is in the user's home directory (`/home/debian/`); it is a script that runs whenever the user logs in.
5. Add your program to the end of the `.profile` file
 - On a new line, enter the full path of the program (such as `/home/debian/myFileHere`).
 - Hint: Have the call to your program be the last line in `.profile`. This will let the user skip the application at log-in (Ctrl-c) and still have the rest of the script execute.
 - To exit `nano` (and save), press `Ctrl+x`, then type `y` (when asked to save the file), then press `ENTER` to select the existing file name.
 - Use `cat` to check the file was edited correctly.
 - Note that file names starting with a period, such as `.profile`, are considered hidden by Linux and will not show up in a file listing. Use the `-a` option for `ls` to show all files:

```
(bbg)$ ls -a
```
6. Test your script by logging out and logging back in. Log out with:

```
(bbg)$ exit
```