

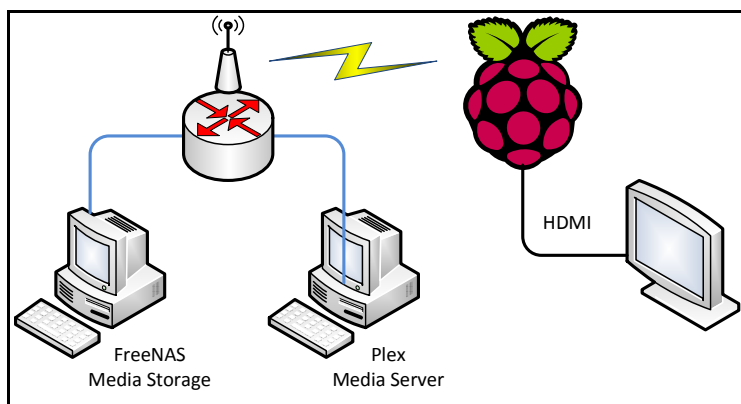
The Internet of Things Workshop

Distributing Shared Media

Hardware Required:

- Computer for FreeNAS Media Storage
 - ✓ Recommend two or more hard drives to demonstrate RAID/ZFS
 - ✓ 8GB USB Flash Drive for FreeNAS
- Computer for Plex Media Server
 - ✓ Using Linux Mint for additional configuration demonstrations, but can be Windows or Mac
- Router/Access Point
 - ✓ Recommend using a DD-WRT Router/AP for additional demonstrations
- Raspberry PI Computer for Plex Home Theatre
 - ✓ Create RasPlex boot SD
 - ✓ Raspberry PI can be connect using the wired network, but recommend getting WiPi wireless
- LCD Television (or Monitor)
 - ✓ Could be setup with a AV receiver in a Home Theatre setup to add more realism
- Cables –
 - (4) Ethernet
 - Connection to ISP
 - Connection to Media Storage
 - Connection to Media Server
 - Connection to Raspberry PI (if not using WiPi)
 - (1) HDMI – will need an additional one if setting up with AV receiver
- Misc –
 - (1) Power strip or surge suppressor
 - (1) Clonezilla Live CD or USB flash
 - (1) USB flash drive with Linux Mint (or Windows) image

Image of Environment:



Setup Instructions:

Part I – Setup FreeNAS Media Storage

- A. Open Firefox and go to **http://192.168.1.1** (or whatever IP address you setup on FreeNAS)

User Name: **root**

Password: **Password1**

- B. Delete the existing environment (if this is the first time through, skip this step)

1. Click the **+** next to the **SHARING** menu option
2. Click the **+** next to the **WINDOWS CIFS SHARES** menu option
3. Click the **DELETE** button
4. Click **YES** to confirm

5. Click the **+** next to the **SERVICES** menu option
6. Click the **CONTROL SERVICES** menu option
7. Next to **CIFS** click the slider to turn off the service

8. Click the **+** next to the **STORAGE** menu option
9. Click the **+** next to the **VOLUMES** menu option
10. Click the **VIEW VOLUMES** menu option
11. On the right panel, click on the **MEDIASTORE** volume to select it
12. On the bottom of the panel click on the **DETACH VOLUME** icon
13. When the window pops up, click on the checkbox next to **MARK THE DISK AS NEW**
14. Click **YES** to confirm

15. Click the **+** next to the **ACCOUNTS** menu option
16. Click the **+** next to the **USERS** menu option
17. Click on **labuser**
18. Scroll to the bottom of the window and click **DELETE**
19. Click **YES** to confirm
20. Click the **+** next to the **GROUPS** menu option
21. The **MEDIAUSERS** group should already be deleted, but if it isn't ...
 - a. Click on **MEDIAUSERS**
 - b. Scroll to the bottom of the screen and click **DELETE**
 - c. Click **YES** to confirm

22. Click on the **REBOOT** menu option
23. Click on the **REBOOT** button to confirm
24. After rebooting, log back into the FreeNAS server as **root**

C. Create Groups and Users

1. Click **+** next to the **ACCOUNTS** menu option
2. Click **+** next to the **GROUPS** menu option
3. Click on **ADD GROUP**
4. Enter the following (case sensitive):
 - Group Name: **MediaUsers**
5. Click the **OK** button

6. Click **+** next to the **USERS** menu option
7. Click on **ADD USER**
8. Enter the following (case sensitive):
 - User Name: **labuser**
 - Uncheck **CREATE A NEW PRIMARY GROUP FOR THIS USER**
 - Primary Group: **MediaUsers**
 - Full Name: **Lab Users**
 - Password: **Password1** (and confirm on next field)
9. Scroll to the bottom and click **OK** to confirm

D. Setup Storage

1. Click **+** next to the **STORAGE** menu options
2. Click **+** next to the **VOLUMES** menu options
3. Click on **VOLUME MANAGER**
4. For the volume name, type in **MediaStore** (case sensitive)
5. Click the **+** next to the **AVAILABLE DISKS** icon (this will add all the HDDs to the volume)
6. Click the **ADD VOLUME** button

7. Click **+** next to **/mnt/MediaStore**
8. Click on **CREATE DATASET**
9. For the dataset name, type in **Media** (case sensitive)
10. Click the **ADD DATASET** button

11. Click **+** next to **/mnt/MediaStore/Media**
12. Click on **CHANGE PERMISSIONS**
13. Enter the following:
 - Change Owner to: **labuser**
 - Change Group to: **MediaUsers**
 - Change Permissions type to **WINDOWS**
14. Click the **CHANGE** button

E. Setup Sharing

1. Click **+** next to **SHARING**
2. Click **+** next to **WINDOWS (CIFS) SHARES**
3. Click **ADD WINDOWS (CIFS) SHARES**
4. Enter the following:
 - Path: **/mnt/MediaStore/Media**
 - Name: **Media**
5. Click **OK** to confirm
6. When asked to enable service, click the **YES** button
7. You should be directed to the SERVICES tab ... Look for the CIFS and click the SETTINGS icon (looks like a wrench).
8. Make the following changes (if they're not already set):
 - NetBIOS Name: **MediaStore**
 - Workgroup: **AtHome**
 - Description: **Media Storage Server**
9. Scroll to the bottom and click OK

Part II – Setup the Plex Media Server

- A. Mount the **MEDIA** shared folder to the media server
 1. Open a terminal session (icon is on the taskbar)
 - a. Create a “Mount Point” for the shared folder →
sudo mkdir /mnt/Media
When asked for the su password, type in **Password1** (case sensitive)
 - b. Mount the shared folder to the mount point →
sudo mount -t cifs //192.168.1.1/Media -o username=labuser,password=Password1 /mnt/Media (on one line)
(Note: The IP address of the FreeNAS server might be different)
 - c. Close the terminal window
- B. Copy the media to the FreeNAS shared folder
 1. Look for the **NETWORK** icon on the desktop, then double-click on it
 2. You'll see the **FreeNAS** server icon ... double-click on it
 3. You'll then see the **Media** folder ... double-click on it
 4. When the authentication window opens, do the following:
 - a. Click the **REGISTERED USER** radio button
 - b. The **labuser** user name should be shown (if it isn't, then type in labuser)
 - c. Change the domain to **AtHome**
 - d. Enter in **Password1** for the password
 - e. Click the **REMEMBER FOREVER** radio button
 - f. Click the **CONNECT** button
 - g. You'll see the folder open, but there will be nothing in the folder (this is ok)
 5. Look on the desktop and you'll find two folders, **MUSIC** and **MOVIES**.
 6. Drag the two folders to the FreeNAS Media folder
(This will take about 10-15 minutes, so continue with the next steps while waiting.)

- C. Install Plex Media Server software
1. Look on the desktop and find the application named **plexmediaserver.deb**
 2. Double-click on the application to begin the installation
 3. Click on the **INSTALL PACKAGE** button
 4. When asked for the **su** password, type in **Password1** (case sensitive)
 5. Click **CLOSE** when finished and close the application installation window
- D. Configure the Plex Media Server
(This step cannot be started until the media files have finished being copied)
1. In Firefox, open a new tab and enter the **http://127.0.0.1:32400/web** which will open the Plex Media Server manager.
 2. Click on the **AGREE** button for the terms of service
 3. On the left side, click on the **+** next to computer name to add Libraries
 4. Click on the **MOVIES** icon
 5. Confirm the name of the library (it's Movies by default)
 6. Click **NEXT**
 7. On the next screen, click on the **BROWSE FOR MEDIA FOLDER** button ... this is where we'll select the FreeNAS media share folders.
 8. On the left side you'll see a folder called **Media** ... click on it
 9. On the right side you'll see the two folders (Movies and Music). Click on the **MOVIES** folder to select it.
 10. Click the **ADD** button to add the folder to the library
(... technically, you could have additional folders that will be added to the Movies library)
 11. On the next screen, confirm the folder by clicking the **ADD LIBRARY** button
 12. Click on the **NEXT** button
 13. Plex will scrape the movie data from the Internet and add posters, descriptions, etc *(be patient)*
 14. Click on the **HOME** icon on the top left of the web page and repeat steps 3 to 13 for music.
- E. Connect the Raspberry PI running RasPlex
1. Connect the power cord to the Raspberry PI to power on
 2. Using the keyboard, press the **LEFT-ARROW** key to go to the System Menu Level and use the **Up/Down** keys to highlight **PREFERENCES** and press ENTER
 3. On the **APPEARANCE** icon (on the left side), press the **RIGHT-ARROW** key to highlight **REGION** and press ENTER until **USA (12hr)** shows up, then **DOWN-ARROW** to **TIMEZONE COUNTRY** and press ENTER until **UNITED STATES** shows up. Then **LEFT-ARROW** twice to go back to the menu
 4. Press **ESC** to go back to the main menu