NFS server for webOS

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Connect NFS server

Images to be used for NFS must be built in a different way than the images to be put on the board.

- **.epk: This is an image uploaded to the board**
  - **Build method: bitbake lib32-starfish-atsc-flash**
- **: The build result used in the nfs server**
  - **Build method: bitbake lib32-starfish-atsc-nfs**

1. **Installing the NFS server**

   If you want to network mount an image, you need to install the **NFS server** on your **Ubuntu** PC, copy the **webOS for smart TV** build to your PC, and then run the **NFS server**. The **NFS server** will host part of the **webOS for smart TV** operating system. To install, copy the build, and run the **NFS server**:

   a. Start a terminal on your **Ubuntu** PC.
   b. You need to create a folder that will contain **webOS for smart TV** operating system. At the command prompt type:

   ```
   $ sudo mkdir -p /home/jihye/nfsroot/starfish1842
   ```

   c. Change the authority of the folder
   i) chown nobody:nogroup

   ii) chmod 777

   d. Next you need to install the **NFS server**. At the command prompt type:

   ```
   $ sudo apt-get install nfs-kernel-server
   ```

   e. After installing the **NFS server** you need to change the properties of the folder you created earlier. At the command prompt type:

   ```
   $ sudo sh -c 'echo "/home/jihye/nfsroot *(rw,sync,nohide,no_root_squash,no_subtree_check)" >> /etc/exports'
   ```

=> If you look at the /etc/exports file,

```
# /etc/exports: the access control list forfilesystems which may be exported
#               to NFS clients.  See exports(5).
#
# Example forNFSv2 and NFSv3:
# /srv/homes       hostname1(rw,sync,no_subtree_check) hostname2(ro,sync,no_subtree_check)
#
# Example forNFSv4:
# /srv/nfs4        gss/krb5i(rw,sync,fsid=0,crossmnt,no_subtree_check)
# /srv/nfs4/homes  gss/krb5i(rw,sync,no_subtree_check)
#
/home/jihye/nfsroot *(rw,sync,nohide,no_root_squash,no_subtree_check)
```

2. Installing dnsmasq

Now you need to install and run **dnsmasq** on your **Ubuntu** PC. To install and run **dnsmasq**:

i. Open */etc/NetworkManager/NetworkManager.conf* in your favorite editor launched from sudo. You need to comment out the line **dns=dnsmasq**. To comment, replace **dns=dnsmasq** with **#dns=dnsmasq**. Save the file and close the file and the editor.To edit the file use:

```
$ sudo vi /etc/NetworkManager/NetworkManager.conf
```

ii. Now you need to re-start the network manager. At the command prompt type:

```
$ sudo service networking restart
```

iii. Next you need to install **dnsmasq**. At the command prompt type:

```
$ sudo apt-get install dnsmasq
```

iv. After installing **dnsmasq**, you need to start it. There are chances that **dnsmasq** is already running, in which case you need to re-start **dnsmasq**. You first need to check if **dnsmasq** is running. To check if **dnmasq** is running, at the command prompt type:

```
$ ps ax | grep dnsmasq
```

If you see the following output, **dnsmasq** is already running. The number displayed at the front is the process number and may not be the same as it is shown here.

```
$  3079 ?     S      0:02 /usr/sbin/dnsmasq
```

If **dnsmasq** is already running, at the command prompt type:

```
$ sudo service dnsmasq restart
```

If **dnsmasq** is not running, at the command prompt type:

```
$ sudo service dnsmasq start
```

Make sure **dnsmasq** has been invoked with the correct arguments. At the command prompt, type:

```
$ ps ax | grep dnsmasq
```

If you see the following output:

```
$  3079 ?     S      0:02 /usr/sbin/dnsmasq -x /var/run/dnsmasq/dnsmasq.pid -u dnsmasq -r /var/run/dnsmasq/resolv.conf -7 \
                          /etc/dnsmasq.d,.dpkg-dist,.dpkg-old,.dpkg-new
```

3. Configuring the LG smart TV network settings

```
M14-WebOS # nset
```

The **Minicom** serial console will display the question **`Will you use a DHCP <y/N>?`**, type **N**. Set the following as shown in the table below:

Item	Type the following value, and press the `Enter` key after typing the value, or just press `Enter` to keep the existing value
ethaddr :	You do not need to change this value. Press the **Enter** key, to move on to the next value.
ipaddr :	The IP address that you selected for your LG smart TV. => Assigned to tv board with unused IP
netmask :	**`255.255.255.0`**
gatewayip :	This should be the **`.1`** address of the subnet of the TV's IP address. For example, **`10.195.245.1`**
serverip :	The IP address of your **Ubuntu** PC.
transserver :	The IP address of your **Ubuntu** PC.

a. Point to the location of the **webOS for smart TV** build using the **nfsroot** command. To do this, at the bootloader command prompt, type:

```
M14-WebOS # nfsroot
```

The **Minicom** serial console will display the question **`Will you use nfsroot ? <Y/n>`**, type **Y**. Set the following as shown in the table below:

Item	Type the following value, and press the `Enter` key after typing the value, or just press `Enter` to keep the existing value
nfs server :	The IP address of your**Ubuntu**PC. For example, **`10.195.247.25`**
nfsroot :	/home/jihye/nfsroot/starfish1842

b. Next you need to set the bootmode to **webos**. To do this, at the bootloader command prompt, type:

```
M14-WebOS # bootmode webos
```

The **Minicom** serial console will display the following:

```
change the mode : <previous-setting> ==> webos
```

If you are using a build prior to Starfish 363, you also need to set the devicenode to **static**. To do this, at the bootloader command prompt, type:

```
M14-WebOS # devicenode static
```

The **Minicom** serial console will display the following if the devicenode setting changed:

```
change the mode : <previous-setting> ==> static
```

If you are using Starfish build 363 or later, you should confirm that the devicenode setting is**dynamic**. To do this, at the bootloader command prompt, type:

```
M14-WebOS # devicenode
```

If it doesn't respond with:

```
M14-WebOS # current mode: dynamic
```

then type:

```
M14-WebOS # devicenode dynamic
```

Save the settings by typing:

```
M14-WebOS # saveenv
```

Running webOS for smart TV on your LG smart TV

Now the moment you worked so hard for! 🙂 . You need to continue using the **Minicom** terminal. You need to restart the TV, but this time you will do it from within **Minicom**. In the **Minicom** serial console, at the command prompt, type:

```
M14-WebOS # reset
```

Preparing a network mounted rootfs image from which to boot your smart TV

Installing a local build of webOS for smart TV on your LG smart TV

1. Follow the instructions at Creating a build for webOS smart TV, to create a local build of **webOS for smart TV**
2. Once the build is complete, extract the build to the **nfsroot directory**. To do this, at the command prompt type:

```
16:42:29-jihye~/.../images/m16p3 (master)$ pwd
/home/jihye/webOS/KCL-TV/build-starfish/BUILD/deploy/images/m16p3
16:43:04-jihye~/.../images/m16p3 (master)$ scp lib32-starfish-atsc-nfs-m16p3-master-20191203071509.tar.gz
jihye@10.177.240.138:/home/jihye/nfsroot/starfish1842/
```

```
$ sudo tar -xvzf <download-folder-name>/<image-file-name> -C /home/jihye/nfsroot/starfish1842/
```

1. The shell will display a large amount of information while it extracts the build files. If this bothers you, don't give the **v** option to **tar**.
2. Finally, you need to re-start the **NFS Server**. At the command prompt type:

```
$ sudo /etc/init.d/nfs-kernel-server restart
```

3.

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Settings in Ubuntu 18.04 Environment

: It is different from the nfs version supported by the board and the version supported by ubuntu, so do not follow the above method.

https://askubuntu.com/questions/974696/how-can-i-make-the-nfs-server-support-protocol-version-2-in-ubuntu-17-10/994907

referring to

1. Start a terminal on your **Ubuntu** PC.
2. You need to create a folder that will contain **webOS for smart TV** operating system. At the command prompt type:

```
$ sudo mkdir -p /home/jihye/nfsroot/starfish1842
```

3. Change the authority of the folder
   i) chown nobody:nogroup

   ii) chown 777

4. Next you need to install the **NFS server**. At the command prompt type:

```
$ sudo apt-get install nfs-kernel-server
```

5. After installing the **NFS server** you need to change the properties of the folder you created earlier. At the command prompt type:

```
$ sudo sh -c 'echo "/home/jihye/nfsroot *(rw,sync,nohide,no_root_squash,no_subtree_check)" >> /etc/exports'
```

after doing

You can do this by editing /etc/default/nfs-kernel-server on your PC.

```
jihye@ jihye-ubuntu16:/etc/NetworkManager $ cat/etc/default/nfs-kernel-server
# Number of servers to start up
RPCNFSDCOUNT = 8

# Runtime priority of server (see nice(1))
RPCNFSDPRIORITY=0

RPCNFSDOPTS="--nfs-version 2,3,4 --debug --syslog"
# To confirm above mods are in effect after service restart use
# cat /run/sysconfig/nfs-utils
# or
# service nfs-kernel-server status
#

# Options for rpc.mountd.
# If you have a port-based firewall, you might want to set up
# a fixed port here using the --port option. For more information,
# see rpc.mountd(8) or http://wiki.debian.org/SecuringNFS
# To disable NFSv4 on the server, specify '--no-nfs-version 4' here
RPCMOUNTDOPTS="--manage-gids"

# Do you want to start the svcgssd daemon? It is only required for Kerberos
# exports. Valid alternatives are "yes" and "no"; the default is "no".
NEED_SVCGSSD=""

# Options for rpc.svcgssd.
RPCSVCGSSDOPTS=""
```

=> This method worked well for starfish-o20, but it didn't work for signage-o20 again ㅠㅠ

```
O20-WebOS # nfsroot

Will you use nfsroot ? <Y/n> y
        -   nfsserver : 192.168.0.5        =>
        -     nfsroot : /share/global_platform/starfish/signage/o20,nfsvers=3 =>
```

I tried this way too, but it doesn't work.

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9 Comments

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(reference:

[outdated] https://wiki.lgsvl.com/display/SVLDEV/Installing+webOS+on+an+LG+smart+TV+using+an+Ubuntu+PC)

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https://help.ubuntu.com/lts/serverguide/network-file-system.html

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Install dnsmasq fail =>

Resolution:

https://linuxhint.com/dnsmasq_ubuntu_server/

ㅠㅠ However, after doing this in this way, I cannot access wiki.lgsvl.com and jira2.lge.com.

Jihye Hong jh.hong

In Ubuntu 18.04 version, if you do this in this way, nfs connection will not work.. ㅠㅠ

Finally, I decided to connect to the server.

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sudo service network-manager start
sudo service network-manager restart

Jihye Hong jh.hong

> chown

chmod

Jihye Hong jh.hong

> bootmode webos

For Signage:

```
$ nfsroot
nfsserver : pc ip
nfsroot : /share/...
$ bootmode webos
$ devicenode dynamic (1.0만 static)
$ saveenv
$ reset
```

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> print on (to check normal boot)

You need to do this to get a log during booting.

Jihye Hong jh.hong

http://collab.lge.com/main/display/~faizal09.b/setup+for+NFS+server

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