RDK-C Normal Thumbnail

- Introduction
- Build Procedure
- Normal Thumbnail Validation Procedure
- Limitations

Introduction

Normal Thumbnail will get YUV data from RPI-0 camera device and it will convert YUV buffer into JPEG image based on openCV and then stored generated JPEG image in local /tmp directory . This page dedicated to bringing up and validation of Normal Thumbnail functionality in RPI-0/RPI-3 B+

Build Procedure

Please refer below link to build camera image

Morty:

RDK-C Build Instruction for RPI-0

RDK-C Build Instruction for RPI-0

Dunfell:

RDK-C rdk-next Yocto 3.1 dunfell build for Raspberrypi

Normal Thumbnail Validation Procedure

STEP 1:

Add require SSID and PSK in /etc/wpa_supplicant.conf file in below format

network={

ssid="username"

psk="password"

}

Console output

```
ctrl_interface=/var/run/wpa_supplicant
ctrl_interface_group=0
update_config=1

network={
ssid="RDK"
psk="Comcast1"
}
```

STEP 2:

Reboot the Target

After Reboot don't do step 1 and 2.

Note : Step 1 & 2 is only applicable for fresh target boot-up with new image.

STEP 3:

WiFi connection is needed to copy captured JPEG Image from /tmp directory into your PC.

Check WiFi connection by using below command.

ifconfig

Console output

```
root@raspberrypi0-rdk-camera:~# ifconfig
lo        Link encap:Local Loopback
          inet addr:127.0.0.1  Mask:255.0.0.0
          inet6 addr: ::1/128 Scope:Host
          UP LOOPBACK RUNNING  MTU:65536  Metric:1
          RX packets:87 errors:0 dropped:0 overruns:0 frame:0
          TX packets:87 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:4552 (4.4 KiB)  TX bytes:4552 (4.4 KiB)

wlan0     Link encap:Ethernet  HWaddr B8:27:EB:2E:72:2B
          inet addr:192.168.43.246  Bcast:192.168.43.255  Mask:255.255.255.0
          UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
          RX packets:23 errors:0 dropped:0 overruns:0 frame:0
          TX packets:44 errors:0 dropped:0 overruns:0 carrier:0
          collisions:0 txqueuelen:1000
          RX bytes:2893 (2.8 KiB)  TX bytes:5887 (5.7 KiB)
```

STEP 4:

check loaded module by using below command

lsmod

Console output

```
root@raspberrypi0-rdk-camera:~# lsmod
Module                  Size  Used by
bcm2835_v4l2           40563  0
v4l2_common             4809  1 bcm2835_v4l2
videobuf2_vmalloc       6264  1 bcm2835_v4l2
videobuf2_memops        1528  1 videobuf2_vmalloc
videobuf2_v4l2         12640  1 bcm2835_v4l2
videobuf2_core         27389  2 bcm2835_v4l2,videobuf2_v4l2
videodev              154457  4 v4l2_common,videobuf2_core,bcm2835_v4l2,videobuf2_v4l2
media                  23307  1 videodev
brcmfmac              258239  0
brcmutil                7590  1 brcmfmac
snd_bcm2835            21405  0
cfg80211              492836  1 brcmfmac
snd_pcm                79872  1 snd_bcm2835
rfkill                 19936  3 cfg80211
snd_timer              20294  1 snd_pcm
snd                    52949  3 snd_timer,snd_bcm2835,snd_pcm
lirc_rpi                6840  0
lirc_dev                7533  1 lirc_rpi
uio_pdrv_genirq         3469  0
uio                     8703  1 uio_pdrv_genirq
fixed                   2876  0
sch_fq_codel            9662  2
ipv6                  384101  18
```

STEP 5:

check camera device there or not by using below command

ls /dev/video0

Console output

```
root@raspberrypi0-rdk-camera:~# ls /dev/video0
/dev/video0
```

STEP 6:

check rdkcmediaserver(RMS) binary is running or not.if it is running then we need to stop RMS binary running because we can't able to validate Normal Thumbnail while running RMS application.

Console output : RMS application running status

```
root@raspberrypi0-rdk-camera:~# ps -Af | grep rdkcmediaserver
root       659     1 22 10:24 ?        00:00:43 ./rdkcmediaserver ../config/config.lua
root      4911   381  0 10:28 ttyS0    00:00:00 grep rdkcmediaserver
```

if we get above status then need to do below step.

Console output : Stop RMS application

```
root@raspberrypi0-rdk-camera:~# systemctl stop rms-launcher
```

STEP 7:

Run normal_thumbnail binary by using below command

Console output

```
root@raspberrypi0-rdk-camera:~# normal_thumbnail
```

STEP 8:

Get JPEG image from local /tmp directory.

Console output

```
root@raspberrypi0-rdk-camera:~# cd /tmp/
root@raspberrypi0-rdk-camera:/tmp# ls thumbnail2020-06-28\:10\:33\:57..jpeg
thumbnail2020-06-28:10:33:57..jpeg
```

STEP 9:

Copy JPEG image from your RPI /tmp directory into your local PC.

Console output

```
xxxxxx@yyyyy-Lenovo-B480:~/THUMBNAIL$ scp root@RPI_DEVICE_WIFI_IP:/tmp/thumbnail* .

Example:
xxxxxx@yyyyy-Lenovo-B480:~/THUMBNAIL$ scp root@192.168.43.246:/tmp/thumbnail* .
thumbnail2020-06-28:10:33:57..jpeg
100%   16KB  16.4KB/s   00:00
xxxxxx@yyyyy-Lenovo-B480:~/THUMBNAIL$
```

Limitations

Can't able to validate RMS(RDK Media Streamer) and CVR(Continuous Video Recoding) features while validating Normal Thumbnail feature.