

# RDK Camera in RPI Reference Platform - WebPA Support - User manual - 2020 - M3

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## Introduction

- This page dedicated to bringing up and validation of Webpa functionality in R-Pi Zero.
- WebPA is the communication channel from Cloud to RDK based home gateway devices. It helps to manage devices from Cloud. WEBPA protocol provides functionality of read/write access to device management parameters.

## Required Equipment

- Raspberry Pi 0 Device
- SD Card
- Power Cable
- OTG Cable
- Standard USB keyboard
- Mini HDMI connector
- HDMI Cable
- Television set/monitor with HDMI input

## System Setup

[blocked URL](#)

## Build Procedure

```
$ repo init -u "https://code.rdkcentral.com/r/rdkcmf/manifests" -m rdkc-nosrc.xml -b master
```

```
$ repo sync
```

```
$ source meta-cmf-raspberrypi/setup-environment
```

```
select meta-cmf-raspberrypi/conf/machine/raspberrypi0-rdk-camera.conf
```

```
$ bitbake rdk-generic-camera-image
```

## Image Flash Procedure

```
$ sudo dd if="Image Name" of="Device Name" bs=4M
```

**Example:**

```
sudo dd if=rdk-generic-camera-image_default_20200130060729.rootfs.rpi-sdimg of=/dev/sdb bs=4M
```

## WEBPA Validation Procedure

### STEP 1:

Add require SSID and PSK in /etc/wpa\_supplicant.conf file in below format

```
network={  
ssid="username"  
psk="password"
```

```
}
```

```
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 must needed for WEBPA validation.

Check WiFi connection by using below command.

ifconfig

```
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:601942 errors:0 dropped:0 overruns:0 frame:0
            TX packets:601942 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:1000
            RX bytes:114032079 (108.7 MiB)  TX bytes:114032079 (108.7 MiB)

wlan0       Link encap:Ethernet  HWaddr B8:27:EB:2E:72:2B
            inet addr:192.168.2.54 Bcast:192.168.2.127 Mask:255.255.255.128
            UP BROADCAST RUNNING MULTICAST  MTU:1500  Metric:1
            RX packets:39137 errors:0 dropped:0 overruns:0 frame:0
            TX packets:160851 errors:0 dropped:0 overruns:0 carrier:0
            collisions:0 txqueuelen:1000
            RX bytes:3743837 (3.5 MiB)  TX bytes:97606553 (93.0 MiB)
```

#### **STEP 4:**

check Parodus binary running status in RPI by using below command

ps -Af | grep parodus

```
root@raspberrypi0-wifi-camera:~# ps -Af | grep parodus
root    293      1   1 16:03 ?        00:00:50 /usr/bin/parodus --hw-mac=B827EB2E722B --webpa-ping-time=60 --webpa-interface-used=wlan0
root    29774   298   0 17:06 ttyS0    00:00:00 grep parodus
root@raspberrypi0-wifi-camera:~#
```

#### **STEP 5:**

check Webpacamera binary running status in RPI by using below command

```
ps -Af | grep webpacamera
```

```
root@raspberrypi0-wifi-camera:~# ps -Af | grep webpacamera
root      347      1   0 16:03 ?           00:00:09 webpacamera
root     10920    298   0 17:17 ttyS0      00:00:00 grep webpacamera
root@raspberrypi0-wifi-camera:~#
```

#### STEP 6:

### Parameter fetching from client( RPI ) device

Fetch device or feature parameter detail from client( RPI ) device through parodus by using webpa server.

#### Command :

```
curl -H 'Authorization:Basic <AUTH_TOKEN>' -i http://<WEBPA_URL>/api/v2/devices
```

#### Example :

```
curl -H 'Authorization:Basic dXNlcjp3ZWJwYQo=' -i 'http://192.168.2.75:9003/api/v2/device/mac:b827eb2e722b/config?names=Device.DeviceInfo.X_RDKCENTRAL-COM_IMAGENAME'
```

#### Output :

```
{"parameters":[{"name":"Device.DeviceInfo.X_RDKCENTRAL-COM_IMAGENAME","value":"RPI-CAM_stable2_20200318070913","dataType":0,"parameterCount":1,"
```

```
message":"Success"}],"statusCode":200}
```

```
root@raspberrypi0-wifi-camera:/lib/systemd/system# curl -H 'Authorization:Basic dXNlcjp3ZWJwYQo=' -i 'http://34.244.61.191:9003/api/v2/de
c:b827eb2e722b/config?names=Device.DeviceInfo.X_RDKCENTRAL-COM_IMAGENAME'
HTTP/1.1 200 OK
Content-Type: application/json; charset=utf-8
X-Scytale-Build: 0.1.4-1
X-Scytale-Flavor: mint
X-Scytale-Region: east
X-Scytale-Server: 34.244.61.191
X-Scytale-Start-Time: 10 Mar 20 14:26 UTC
X-Talaria-Build: 0.1.3-1
X-Talaria-Flavor: mint
X-Talaria-Region: east
X-Talaria-Server: 34.244.61.191
X-Talaria-Start-Time: 10 Mar 20 14:26 UTC
X-Tridium-Build: 0.1.3-434
X-Tridium-Flavor: mint
X-Tridium-Region: east
X-Tridium-Server: 34.244.61.191
X-Tridium-Start-Time: 10 Mar 20 14:27 UTC
X-Webpa-Transaction-Id: sfD6VCTN259QWkP5B73hfQ
X-Xmidt-Span: "http://127.0.0.1:8080/api/v2/device/send","2020-03-31T10:36:14Z","335.943528ms"
Date: Tue, 31 Mar 2020 10:36:14 GMT
Content-Length: 182

{"parameters":[{"name":"Device.DeviceInfo.X_RDKCENTRAL-COM_IMAGENAME","value":"RPI-CAM_stable2_20200318070913","dataType":0,"parameterCou
message":"Success"}],"statusCode":200}root@raspberrypi0-wifi-camera:/lib/systemd/system#
```

Able to fetch below list of parameter from client( RPI ) device.

Sl#	WebPA Parameter	WebPA Output ( Example )
1	Device.DeviceInfo.X_RDKCENTRAL-COM_IMAGENAME	RPI-CAM_stable2_20200318070913
2	Device.DeviceInfo.Manufacturer	RPI
3	Device.DeviceInfo.X_RDKCENTRAL-COM_MAC	b8:27:eb:2e:72:2b
4	Device.DeviceInfo.UpTime	477 sec
5	Device.DeviceInfo.MemoryStatus.Total	309732.000000 KB
6	Device.DeviceInfo.MemoryStatus.Free	276588.000000 KB
7	Device.WiFi.X_RDKCENTRAL-COM_IPv4Address	192.168.43.246
8	Device.WiFi.X_RDKCENTRAL-COM_PublicIP	157.46.55.67

9	Device.WiFi.X_RDKCENTRAL-COM_HostName	raspberrypi0-wifi-camera
10	Device.WiFi.X_RDKCENTRAL-COM_NetMask	168.109.28.0
11	Device.WiFi.X_RDKCENTRAL-COM_Gateway	192.168.43.218
12	Device.WiFi.X_RDKCENTRAL-COM_UserName	root
13	Device.DeviceInfo.ModelName	RPIMC
14	Device.DeviceInfo.Description	RPIMC Home Security Device
15	Device.DeviceInfo.SerialNumber	000000009e7b277e
16	Device.X_RDKCENTRAL-COM_Camera.LiveStream.EvoStream.ServerIP	192.168.0.107
17	Device.X_RDKCENTRAL-COM_Camera.LiveStream.EvoStream.ServerPort	81
18	Device.X_RDKCENTRAL-COM_Camera.LiveStream.EvoStream.RoomName	rpi0

## Limitations

- Validated only the above get parameters mentioned.

## Troubleshooting

### • Error Message

Following are the error message that user may taken into considerations:

- "message":"Invalid parameter value"},"statusCode":520

For Invalid parameter value, check for correct parameter name and the unwanted space in the command.

- "message":"Error unsupported namespace", "statusCode":520

For Unsupported namespace, check for the respective services that are essential to fetch the data. For example, WiFi related information can be accessed only if ccspwifagent service is active.

- "message":"Service Unavailable", "statusCode":531

For this error, ensure the network connection and the server and client-side services are up.

## Special Considerations

Since different services are involved in the communication, port-number specification should be taken into account.

- In Client-side, along with ServerURL Port number of Talaria should be specified.
- From user-end, while requesting for information Tr1d1um's Port number should be given.