

RDK-C : WebPA Support

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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.

Environment Setup

Refer below link for RPI-0 Environment setup

[RDK-C Environment Setup](#)

Build Procedure

Refer below link to build camera image

[RDK-C Build Instructions for R-Pi](#)

Image Flash Procedure

Refer below link for Image flash Procedure.

[Image Flash Procedure](#)

WEBPA 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 must needed for WEBPA validation.

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 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 dXNlcjpw3ZWJwYQo=' -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 dXNlcjpw3ZWJwYQo=' -i 'http://34.244.61.191:9003/api/v2/device/mac: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,"parameterCount":1,"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	rp10
----	--	------

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 ccspwifiaagent 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.