RDK-B (Raspberry Pi) Build and Setup Manual - Router Profile

- Introduction
- Build Instructions and Flashing Procedure
- Hardware and Setup Information
- Router Profile Test Bed using RPI
- Router Functionality Use Case - Internet connectivity for Wired and Wireless Client(s)
- Lists of Supported Features
- Supported Features User manual
    - Additional Links

Introduction

The Raspberry Pi Model 3B+,4B,3B featuring a 64-bit quad core **processor** running at 1.4 Ghz. R-Pi3 B+ supports the dual band 2.4GHz and 5GHz IEEE 802.11.b/g/n/ac wireless LAN which provides an high edge for the broadband developer community to test the RDK-B stack with Router, WiFi functionalities.

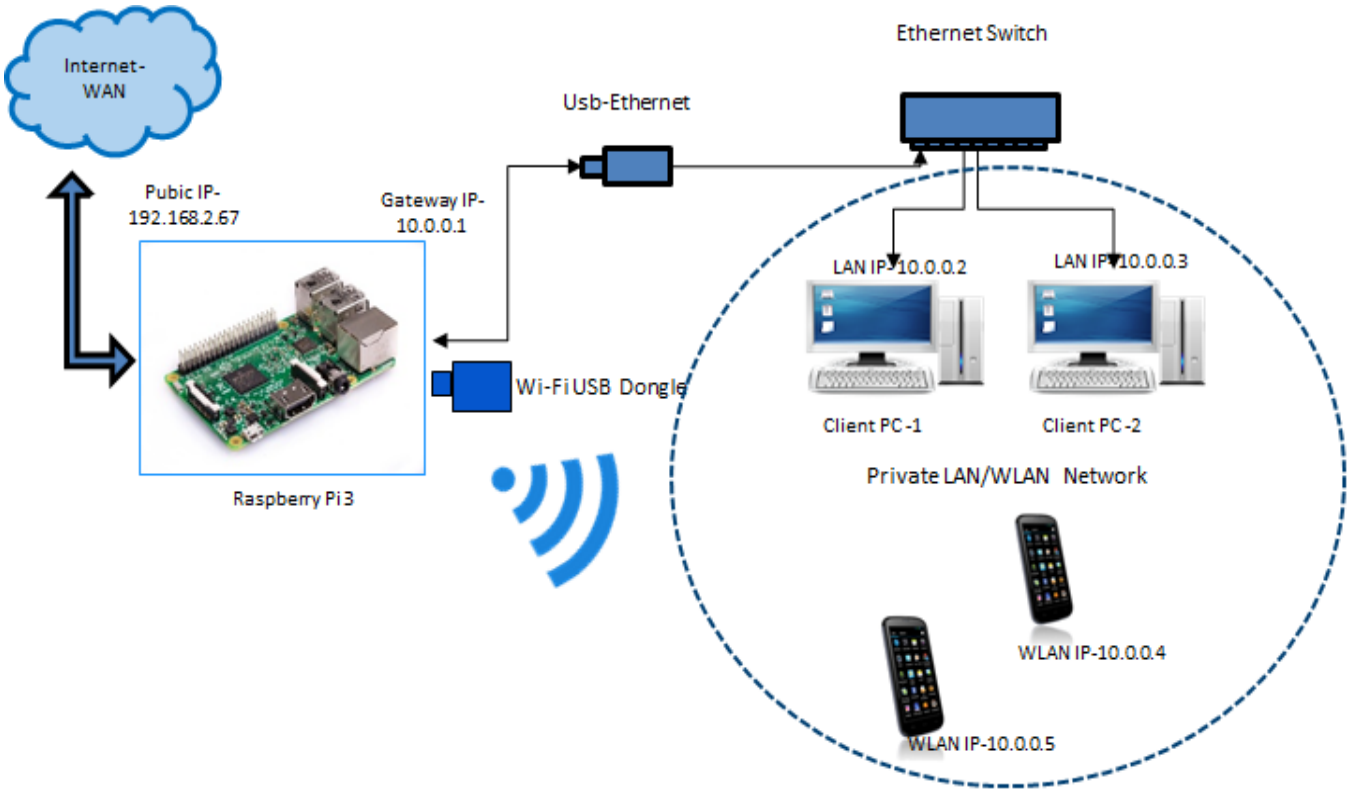
Build Instructions and Flashing Procedure

- RPI Model 3B/3B+ - RPI 3B/3B+ Model Reference Platform
- RPI Model 4B 32 bit - RPI 4B Model Reference Platform
- RPI Model 4B 64 bit - RPI 4B Model Reference Platform with 64bit Arch
- RPI Extender Model 4B - RPI 4B Model Reference Platform: Extender build instructions

Hardware and Setup Information

- **RDKB RPI Setup Information**

Router Profile Test Bed using RPI



Router Functionality Use Case - Internet connectivity for Wired and Wireless Client(s)

1. Ethernet Port of RPI should be connected to WAN Network
2. Connect WiFi Dongle to RPI (Please refer to supported dongle here RDKB RPI Setup Information#DonglesInformationLinks)

3. Client PC(s) should be connected to RPI through Usb2Ethernet Adaptor which should be supported by RPI (Please refer to https://elinux.org/RPi_USB_Ethernet_adapters for supported usb to ethernet adapter by RPI). Ethernet switch is an optional in between usb2ethernet adapter and Client PC
4. Once powered on, RPI should be able to list interfaces erouter0,brlan0 and wlan0 after boot up
5. Logs can be verified under /rdklogs/logs folder
6. Now, client pc should be able to get private ip in the rage 10.0.0.x range
7. Two radios are supported by RPI (2.4 and 5 GHz) respectively. By default following SSID's are broadcasted by RPI under respective radio
    a. 2.4GHz (Private WiFi)
        i. SSID name - "RPI3_RDKB-AP0"
        ii. Password - "rdk@1234"
    b. 5 GHz (Xfinity WiFi)
        i. SSID name - "RPI3_RDKB-AP1"
        ii. Password - "rdk@1234"
8. Connect mobile with above default SSID name and password for respective radio. Any one radio should be used for establishing connection in mobile
9. Now, mobile should be able to get private ip in the rage 10.0.0.x range
10. To get Internet for both mobile and wired client pc , user should configure captive portal by accessing any url or 10.0.0.1 from mobile browser or PC browser. When RPI image is flashed for the first time captive portal will be enabled which will auto redirect to captive portal page and asks user to re-configure the default SSID name and password of radio(s) . Please refer to Captive Portal in R-Pi User Manual for more information.
11. Client PC should be able to connect to internet now. Ping test can also be done by connecting gateway ip 10.0.0.1
12. Since reconfiguration is done for default SSID username and password in webUI, provide the reconfigured SSID and password in mobile for reconnection with RPI
13. Now, mobile and wired client pc should be able to browse the internet. Please refer to Clients Connection and its set up Diagram in RPI - User Manual for more information regarding the same for both wired and wireless connection information
14. Connected client(s) PC and mobile information can be verified through webui by executing URL 10.0.0.1 in Client PC Browser and login with following credentials
    a. Username : **admin**
    b. Password : **password**
15. Please refer to link Webui Functions for various features that can be controlled through webui

Lists of Supported Features

1. DHCP Gateway Configuration
2. Connected Devices (Wired/Wireless)
3. Private Wifi 2g/5g
4. Xfinity-wifi 2g/5g
5. Parental Control(Managed Devices,Managed Sites,Managed Services)
6. Port Forwarding
7. Remote Management (Available only with http support)
8. DMZ
9. Factory-Reset
10. Captive Portal
11. Password-Reset
12. Test and Diagnostics
13. Bridge Mode
14. Webpa
15. WPS
16. Bootchart
17. MAC Filtering
18. Firewall Settings
19. Log level control through CcspLogAgent
20. Firmware Upgrade using Dual bank
21. Log Rotation Support
22. SNMP
23. Band Steering using RSSI
24. Backup and Restore
25. SelfHeal
26. Telemetry
27. Porting of WanManager
28. Telemetry 2.0

Supported Features User manual

- Porting of WanManager in RDKB RPI - Porting of WanManager
- Clients Connection and its set up Diagram in RPI - User Manual
    - RDK Based WiFi Management
- Additional Routing features user manual - Bridge Mode, Test and Diagnostics,DMZ,Xfinity hotspot (wifi connection) and Remote Management
    - Demo Videos - which covers mentioned features
- Captive Portal in R-Pi - User Manual - Captive Portal
- WebPA Client Support - User Manual - Webpa
- Wireless Protection Setup - User Manual - WPS
- RDK-B Boot time data automation - User Manual - Bootchart
- MAC Filtering in R-Pi - User Manual - MAC Filtering
- RDKB CcspLogAgent Component in RPI - User Manual - Log level control through EthLogAgent
- RDKB(V) Firmware Upgrade in RPI - User Manual - Firmware Upgrade using Dual bank

- Log Rotation Support in RPI User manual - Broadband - 2019 M8 - Log Rotation
- SNMP - RDKB RPI - User Manual - 2020 - M7 - SNMP
- Firmware Upgrade with Support of HTTP Protocol & TFTP Protocol in RDKB RPI - Broadband - User Manual - 2020 - M6 - Firmware Upgrade using Http Protocol
- Self Heal Support in RPI - Design - 2019 M10 - Self Heal
- Telemetry(1.0) in RPI User manual Broadband - 2019 M9 - Telemetry
- Backup and Restore Feature in RPI - User Manual - Backup and Restore
- Band Steering User manual(With CcspWifiAgent) - RDKB - Band Steering
- RDKB EthAgent Component in RPI - User Manual - 2019 M7 - Associated LAN clients informations
- Telemetry 2.0 support for RDKB RPI -User Manual - Telemetry 2.0

Additional Links

- RDK-B Components - covers components supported by RDKB
- Utopia covers basic routing features of RDKB