

FirmwareSanity



This page is under development

- [Introduction](#)
- [Code Flow](#)
- [Feature configuration](#)
- [Feature validation](#)

Introduction

FirmwareSanity is a RDK-B component that validates the firmware of the Broadband gateway. The gateway sets firmware validity flag to FALSE after downloading new firmware, prior to rebooting. If firmware validity flag is FALSE at boot, broadband gateway:

1. Enables hardware watchdog timer as soon as Linux kernel executes and pings hardware watchdog timer every 15 seconds.
2. Determines reachability of configurable URL (Xconf or other) and runs 60 minute timer, and if both reachability test and timer complete successfully, broadband gateway sets firmware validity flag to TRUE and boot count to 0.

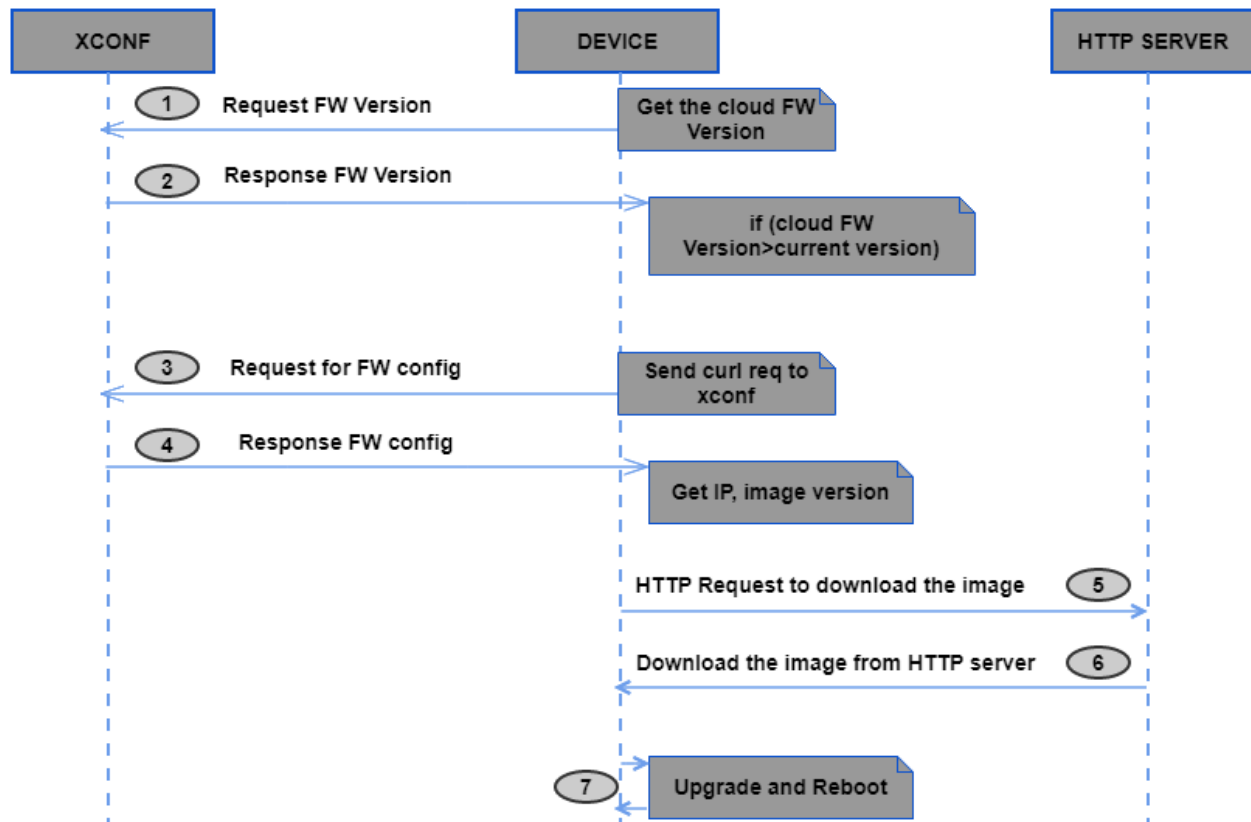
A check is put in place as part of this component to avoid a scenario where a newly downloaded image crashes right after bootup and end up in a loop where it boots up and crashes continuously, we mark the new image as "good" once it has

1. Established communications with XConf (guaranteeing that it can download a new image if need be).
2. Operational for some period of time

Once the newly downloaded image is confirmed as "good" only then we update the bootloader to flag that the bootloader can pick this image on subsequent reboots.

Code Flow

How It Works



Feature configuration

Validation can be done by

1. Defining the firmware config
2. Defining the firmware rule
3. Defining the Firmware Download Location

Sample

Firmware config

Description	RDKB_FW_Upgrade
File name	rdkb-generic-broadband-image_default_20190806064321.rootfs.rpi-sdimg
Version	rdkb-generic-broadband-image_default_20190806064321

Models:

ID IS CHANDRAKANTH RPI	MODELXYZ	PX013AN	PX051AEI	RPI	RPI_BB
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Add Firmware Rule

PROPERTIES

Name

Type

BUILD CONDITIONS

AND

OR

☐ not

IS

▼

+

Please provide value for each condition in the rule:
click condition, enter fixedArg value, then click Plus button to save that condition.
Note: Key value in condition can be modified. It's not allowed to add new conditions.

ACTION

Action Type

NoOp

Firmware Config

Save

Cancel

Download Location Round Robin Filter

HTTP

Location (FQDN):

www.myfirmware.com

Location (full HTTP locaiton)

https://myfirmware.com

Never use HTTP:

☒ (if this box is checked TFTP location will always be used no matter what the STB sends)

Rogue models:

ID IS CHANDRAKANTH RPI

MODELXYZ

PX013AN

PX051AEI

RPI

RPI_BB

RPI_LNT_CSV

RPI_RDKB

TDKB

Firmware versions

RDKM_firmware_upgrade

FwConfig_28July

RDKB_FW Upgrade

TFTP

IPv4 locations:

192.168.30.172

100

%

+

IPv6 locations:

+

Save

Cancel

Feature validation

Client end verification (RPI)

- As soon as the box comes up , check for "cat /version.txt" , which should hold the flashed image
- Verify the below log files for curl response , Xconf http code and upgrade logs

Log files	Responses
response.txt	{ "firmwareDownloadProtocol": "tftp", "firmwareFilename": "rdkb-generic-broadband-image_default_20190806064321.rootfs.rpi-sdimg", "firmwareLocation": "192.168.30.172", "firmwareVersion": "rdkb-generic-broadband-image_default_20190806064321", "rebootImmediately": false}
xconf_curl_httpcode	200
swupdate.log	Has the firmware upgrade logs