

# **Bluetooth FW Auto Detection Guideline**

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## Revision History

Date	Version	Description	Author
2016/7/27	0.1	1. Initial revision of Bluetooth FW Auto detection	Luke Chen

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## **INTRODUCTION**

This user guide is intended to give Ampak module users a general guide of how to do load correct BT FW by reading its chip ID. Users can have one system FW image to support multiple AMPAK modules.

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## PRINCIPLE TO DO FW AUTO DETECTION

We can use opcode(0x0c14) read local name HCI command to get the chip id to know which FW we should use. As below example, we can see the chip id is BCM4324B3 and it's our AP62X2 module. So we can use this information to know which firmware we should load to controller.

[illegible]

Figure 1: HCI command to read local name

## SOFTWARE CHANGES

# ANDROID

1. Let's configure `/etc/bluetooth/bt_vendor.conf` as below:

To configure FwPatchFilePath but **NOT** to specify the name of the FW.

```
# UART device port where Bluetooth controller is attached
```

```
UartPort = /dev/ttyS2
```

```
# Firmware patch file location
```

FwPatchFilePath = /system/vendor/modules/

# Firmware Name

```
##FwPatchFileName = bcm20710a1.hcd
```

2. Apply minor changes to hardware/broadcom/libbt/src/hardware.c

Please check "FwAutoDetection" SW package.

3. Put all modules BT firmware you want to support to the path you specify in  
/etc/bluetooth/bt\_vendor.conf

In this case, you should put it to /system/vendor/modules/

**FwPatchFilePath = /system/vendor/modules/**

When BT turns on, it will read chip id and load corresponding firmware to controller.

4. Check if it loads correct firmware.

You can see below sample log from logcat. It means that it loads the FW from  
/system/vendor/modules/bcm43341b1.hcd to controller.

```
D/bt_hwcfg(19689): Chipset BCM43341B0
D/bt_hwcfg(19689): Target name = [BCM43341B0]
D/bt_hwcfg(19689): Updated Target name = [BCM43341B0]
I/bt_hwcfg(19689): Found patchfile: /system/vendor/modules//bcm43341b0.hcd
```

If you see logs as below, it means that it must be something wrong and you should check if the path is correct and if the file is available in this path.

```
D/bt_hwcfg(19689): Updated Target name = [BCM43341B0]
D/bt_hwcfg(19689): Target name = [BCM43341]
D/bt_hwcfg(19689): Updated Target name = [BCM43341]
E/bt_hwcfg(19689): vendor lib preload failed to locate firmware patch file
```

## LINUX BLUEZ

We will provide an updated the brcm\_patchram\_plus.c utility (Please check "FwAutoDetection" SW package.

) which can support auto detection feature to bring up hci interface

The command to use brcm\_patchram\_plus is the same but it will load correct firmware name.

In below example, if you are using AP6212 and the --patchram parameter is set to  
/path/to/fw/xxx.hcd. The utility will change it to /path/to/fw/**bcm43438a0.hcd** automatically.

```
#./brcm_patchram_plus --tosleep=200000 --no2bytes --enable_hci
--patchram=/path/to/fw/xxx.hcd /dev/ttyUSB0
```

Hence, you should put all the module firmware you want to support to /path/to/fw/ folder



## **LINUX BSA STACK**

Please contact AMPAK support team if you are using BSA stack.

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