How to append vendor specific IE in driver management frames

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Introduction

This document can teach user, how to append vendor specific IE in Realtek driver management frames by iwpriv (rtwpriv) command.
Please follow those steps to set vendor ie setting.

Driver setting.

1. Please enable append vendor ie feature from Makefile
CONFIG_APPEND_VENDOR_IE_ENABLE = n ==>
CONFIG_APPEND_VENDOR_IE_ENABLE = y

Step.

1. Insert Realtek driver
    Ex: insmod 8821au.ko
2. Up interface
    Ex: ifconfig wlan0 up
3. Use iwpriv tools (or rtwpriv tools) and command "vendor_ie_set" to set vendor ie
    Ex: iwpriv wlan0 vendor_ie_set
    0,5,dd3300e04c0123456789abcdef0123456789abcdef0123456789abcdef0123456
    789abcdef0123456789abcdef0123456789abcdef
4. Can use iwpriv tools (or rtwpriv tools) and command "vendor_ie_get" to get vendor ie setting
5. Run hostapd or wpa_supplicant

Note: If want to change vendor IE , after setting , must restart hostapd or wpa_supplicant.

Command usage

1. vendor_ie_set:

iwpriv [interface_name] vendor_ie_set [vendor_ie_number],[vendor_ie_mask],[vendor_ie_context]

    interface_name: wifi interface name (ex: wlan0)

    vendor_ie_number: want to append vender ie number , can support number 0~4 , totals 5 groups vendor ie.

    vendor_ie_mask: which management frame want to add vendor ie.

        Bit(0) beacon

        Bit(1) probe request

        Bit(2) probe response

        Bit(3) association request

        Bit(4) association response

ex: If you want to add vendor ie to beacon and probe response , vendor_ie_mask will be set "5" , (5 = binary 0000 0101)

    vendor_ie_context: Full vendor ie Hexadecimal context.

    ex: [Element ID][Length][OUI][Value]

    ex:

dd3300e04c0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef

[dd] = decimal 221 = Vendor specific Element ID

[33] = decimal 51 bytes = IE Length

[00e04c] = REALEK SEMICONDUCTOR CORP

[0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef] = Value

Setting example: To set group 0 or group 3

iwpriv wlan0 vendor_ie_set
0,5,dd3300e04c0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef
0123456789abcdef

or

iwpriv wlan0 vendor_ie_set

3,3,dd3300e04c0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef

0123456789abcdef

2. vendor_ie_get:

iwpriv [interface_name] vendor_ie_get [vendor_ie_number]

  interface_name: wifi interface name

  vendor_ie_number: want check appended vender ie number , can support number 0~4 , totals 5 groups

vendor ie.

ex: To get group 0 setting or get group 3 setting

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iwpriv wlan0 vendor_ie_get 0

wlan0 vendor_ie_get:

Vendor IE num 0 , Mask:5 [Beacon][Probe Resp]

Vendor IE:

dd3300e04c0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef01234
56789abcdef

or

iwpriv wlan0 vendor_ie_get 3

wlan0 vendor_ie_get:

Vendor IE num 3 , Mask:3 [Beacon][Probe Req]

Vendor IE:

dd3300e04c0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef01234
56789abcdef

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3. Clear vendor ie setting:

ex: To clear vendor ie number 1 group

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iwpriv wlan0 vendor_ie_set 1,0,0

Can use vendor_ie_get to check

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  iwpriv wlan0 vendor_ie_get 0

  wlan0 vendor_ie_get:

  Vendor IE num 0 , Mask:0

  Vendor IE: