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,dd3300e04c0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef
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	Frame Type	Hex. Number	Device Role
Bit(0)	beacon	0x1	softAP, GO
Bit(1)	probe request	0x2	STA
Bit(2)	probe response	0x4	softAP, GO
Bit(3)	association request	0x8	STA
Bit(4)	association response	0x10	STA
Bit(5)	P2P probe request	0x20	P2P device, GC, GO
Bit(6)	P2P probe response	0x40	P2P device

Ex1: If you want to append vendor ie to beacon and probe response , vendor_ie_mask will be set "5" , (0x5 = binary 0000 0101)

Ex2: If you want to append vendor ie to P2P probe request and beacon , vendor_ie_mask will be set "21" , (0x21 = binary 0010 0001)

vendor_ie_context: Full vendor ie Hexadecimal context.

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

ex:

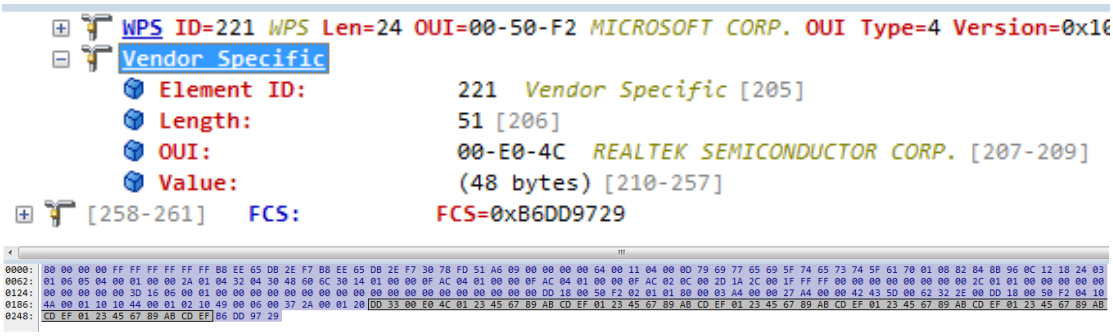
dd3300e04c0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef

[dd] = decimal 221 = Vendor specific Element ID

[33] = decimal 51 bytes = IE Length

[00e04c] = REALEK SEMICONDUCTOR CORP

[0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef] = Value



Setting example: To set group 0 or group 3

iwpriv wlan0 vendor_ie_set

0,5,dd3300e04c0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef

or

iwpriv wlan0 vendor_ie_set

3,3,dd3300e04c0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef

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

iwpriv wlan0 vendor_ie_get 0

wlan0 vendor_ie_get:

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

Vendor IE:

dd3300e04c0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef

or

iwpriv wlan0 vendor_ie_get 3

wlan0 vendor_ie_get:

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

Vendor IE:

dd3300e04c0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef

3. Clear vendor ie setting:

ex: To clear vendor ie number 1 group

iwpriv wlan0 vendor_ie_set 1,0,0

Can use vendor_ie_get to check

iwpriv wlan0 vendor_ie_get 0

wlan0 vendor_ie_get:

Vendor IE num 0 , Mask:0

Vendor IE: