How to append vendor specific IE in driver management frames

2018/07/10

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.

 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,dd3300e04c0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef
- 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)

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

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:

 $\label{eq:dd3300e04c0123456789abcdef01234567$

[dd] = decimal 221 = Vendor specific Element ID

[33] = decimal 51 bytes = IE Length

[00e04c] = REALEK SEMICONDUCTOR CORP

[0123456789abcdef 0123456789abcdef 0123456786789abcdef 0123456789abcdef 0123456789abcdef 0123456789abcdef 0123456789abcdef 0123456789abcdef

f] = Value



Setting example: To set group 0 or group 3

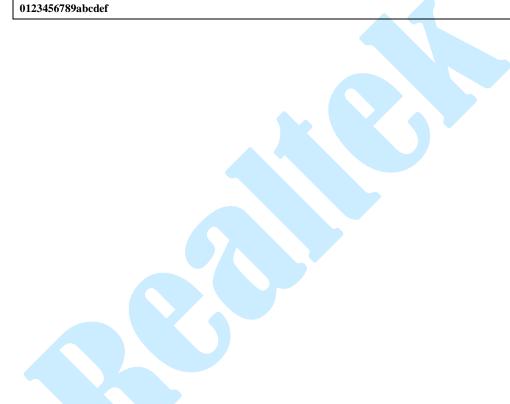
iwpriv wlan0 vendor_ie_set

0, 5, dd3300e04c0123456789 abcdef0123456789 abcdef01234

or

 $iwpriv\ wlan0\ vendor_ie_set$

3, 3, dd 3300 e 04 c 0123456789 abc def 012345678



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:

56789abcdef

or

iwpriv wlan0 vendor_ie_get 3

wlan0 vendor_ie_get:

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

Vendor IE:

dd3300e04c0123456789abcdef01

56789abcdef

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

$iwpriv\ wlan 0\ vendor_ie_get\ 0$

wlan0 vendor_ie_get:

Vendor IE num 0, Mask:0

Vendor IE: