

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 vendor 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

[0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcdef0123456789abcde

f] = Value

```
WPS ID=221 WPS Len=24 OUI=00-50-F2 MICROSOFT CORP. OUI Type=4 Version=0x10
Vendor Specific
  Element ID: 221 Vendor Specific [205]
  Length: 51 [206]
  OUI: 00-E0-4C REALTEK SEMICONDUCTOR CORP. [207-209]
  Value: (48 bytes) [210-257]
[258-261] FCS: FCS=0xB6DD9729
```


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:
```