NRC7292 Application Note
(Dynamic Vendor IE in Beacon)

Ultra-low power & Long-range Wi-Fi

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Newracom, Inc.

NRC7292 Application Note (Dynamic Vendor IE in Beacon)
Ultra-low power & Long-range Wi-Fi Module

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Contents

1 Overview..... 5
2 How to use the Dynamic Vendor IE 6
2.1 Deliver vendor specific information 6
2.2 Retrieve vendor specific information 7
3 Revision History 8

List of Figures

Figure 1.1 Concept of the Dynamic Vendor IE 5
Figure 2.1 Usage and example of the broadcast of vendor information 6
Figure 2.2 Usage and example of the retrieve of vendor information 7

1 Overview

This document describes the Dynamic Vendor IE feature. This feature is to broadcast vendor specific information in a Beacon frame. As shown in Figure 1.1, a 11ah AP can deliver up to 5 vendor specific information in one Beacon frame. Furthermore, the number of vendor specific information and its contents can be changed dynamically with *iw* command. The Dynamic Vendor IE feature is supported only through the host mode.

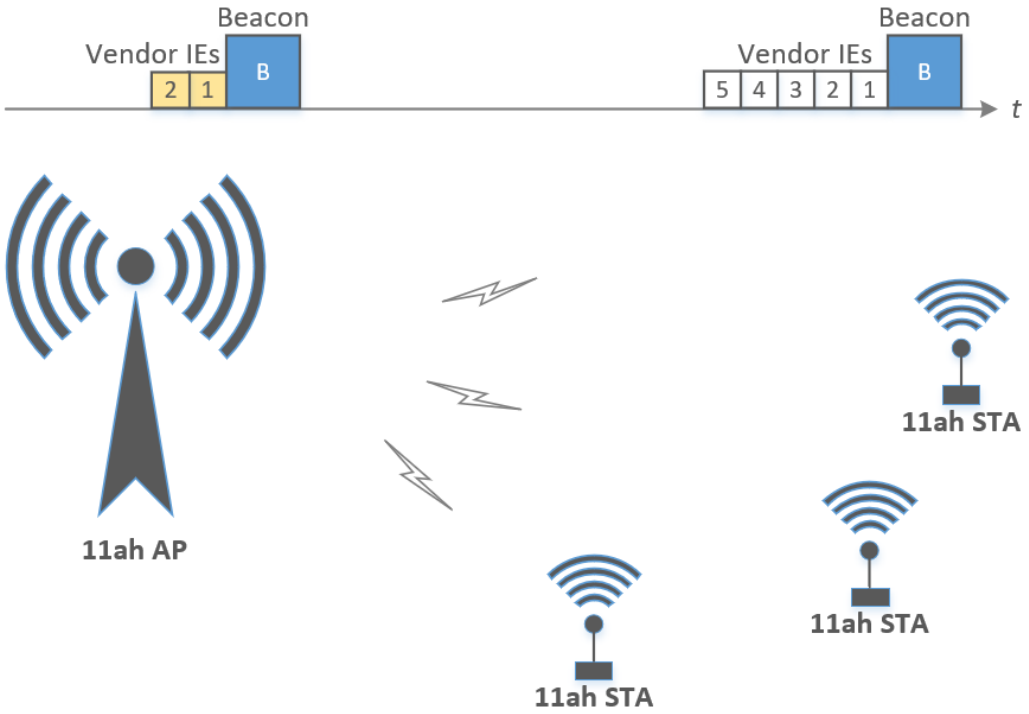

Figure 1.1 Concept of the Dynamic Vendor IE

2 How to use the Dynamic Vendor IE

2.1 Deliver vendor specific information

Figure 2.1 presents the usage and examples of vendor information broadcast through a Beacon frame. User can use *iw* command for vendor information delivery on the host terminal. Once the user executes the command, the vendor information is sent at the next Beacon frame. User can run this command during 11ah AP operation.

USAGE

iw dev <Interface> *vendor recv* <OUI> <Vendor IE index> <HEX data>

Interface	: 11ah interface (e.g. wlan0)
OUI	: Organization Unique Identifier (0xFCFFAA for NRC)
Vendor IE index	: index of vendor IE in a Beacon frame (up to 5 from 0xF0 to 0xF4)
HEX data	: vendor information data in hex (up to 255 Bytes)

EXAMPLE

1) deliver one vendor information in a Beacon frame through wlan0 interface
   $ sudo iw dev wlan0 vendor recv 0xFCFFAA 0xF0 0x01 0x02 0x03 0x04

2) deliver three vendor information in a Beacon frame through wlan0 interface
   $ sudo iw dev wlan0 vendor recv 0xFCFFAA **0xF0** 0x01 0x02 0x03 0x04
   $ sudo iw dev wlan0 vendor recv 0xFCFFAA **0xF1** 0x05 0x06 0x07 0x08
   $ sudo iw dev wlan0 vendor recv 0xFCFFAA **0xF2** 0x09 0x0A 0x0B 0x0C

Figure 2.1 Usage and example of the broadcast of vendor information

2.2 Retrieve vendor specific information

User can retrieve the vendor specific information by using *iw* command as shown in Figure 2.2. When the user execute this command, the retrieved vendor information printed out on the terminal. User only can use this command at the 11ah STA.

USAGE

iw event -f

EXAMPLE

When 11ah AP broadcasts tow vendor IE, “0x01020304” and “0x05060708”

```
$ sudo iw event -f
vendor event: 08 00 00 00 01 02 03 04
vendor event: 08 00 00 00 05 06 07 08
vendor event: 08 00 00 00 01 02 03 04
vendor event: 08 00 00 00 05 06 07 08
....
```

Figure 2.2 Usage and example of the retrieve of vendor information

3 Revision History

Revision No	Date	Comments
Ver 1.0	07/05/2019	Initial version for customer release created