IEEE P802.11  
Wireless LANs

|  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |  |
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| |  |  |  |  |  | | --- | --- | --- | --- | --- | | Diagnostic subelement augmentation continued | | | | | | Date: 2024-05-11 | | | | | | Author(s): | | | | | | Name | Affiliation | Address | Phone | email | | Jinjing Jiang | Apple Inc. |  |  | jinjing@apple.com | | Jerome Henry | Cisco Inc. |  |  |  | |

Abstract

This submission proposes additional changes to the Diagnostic elements based on DCN1854.

**Revision History:**

R0: Initial version.

## Discussion:

In DCN1854, augmentation is done to the Diagnostic Subelement, which allows the AP to query information about the non-AP STAs including new device types, versioning information, and so on. Reversely, the following information about AP would be useful to a non-AP STA too:

* AP friendly name,
* AP vendor name,
* AP model name,
* AP firmware version,
* AP firmware update status,
* AP category,
* AP fault indication.

## Proposed Resolution:

**REVISED**

**Instruction to TGmf Editor:**

Implement the proposed text updates.

**TGmf Editor: *Instruction: In REVme D7.0, modify 9.4.2.67.5 as shown below***

The Diagnostic Subelement ID field indicates the Diagnostic subelement ID and is any allocated value in Table ~~Figure~~ 9-243 (Diagnostic subelement ID values).

|  |  |
| --- | --- |
| **Diagnostic subelement ID values** |  |
| **Subelement ID** | **Subelement name** |
| 0 | Credential Type |
| 1 | AKM Suite |
| 2 | AP Descriptor |
| 3 | Antenna Type |
| 4 | Cipher Suite |
| 5 | (#2210)Colocated Radio Type |
| 6 | Device Type |
| 7 | EAP Method |
| 8 | Firmware Version |
| 9 | MAC Address |
| 10 | Manufacturer ID String |
| 11 | Manufacturer Model String |
| 12 | Manufacturer OI |
| 13 | Manufacturer Serial Number String |
| 14 | Power Save Mode |
| 15 | Profile ID |
| 16 | Supported Operating Classes |
| 17 | Status Code |
| 18 | SSID |
| 19 | Tx Power Capability |
| 20 | Certificate ID |
| 21 | Device Model |
| 22 | Operating System Version |
| 23 | Vendor OS Version |
| 24 | Service Provider Version |
| 25 | Power Source |
| 26 | Session Issue Report |
| 27 | AP Firmware Update Status |
| 28 | Device Name |
| 2~~19~~–220 | Reserved |
| 221 | Vendor Specific |
| 221–255 | Reserved |

**TGmf Editor: *Instruction: In REVme D7.0, please modify Table 9-246 as shown below:***

Table 9-246 (Device Type definitions).

|  |  |
| --- | --- |
| **Device Type definitions** |  |
| **Device Type** | **Value** |
| Reserved | 0 |
| Reference Design | 1 |
| Access Point or Wireless Router for Home or Small Office | 2 |
| Enterprise Access Point | 3 |
| Cable, DSL, or Other Broadband Gateway | 4 |
| Digital Still Camera | 5 |
| Portable Video Camera | 6 |
| Networked Web Camera | 7 |
| Digital Audio—Stationary | 8 |
| Digital Audio—Portable | 9 |
| Set-Top Box, Media Extender, Media Server (includes players & recorders) | 10 |
| Display Device (television, monitor, picture frame) | 11 |
| Game Console or Game Console Adapter | 12 |
| Gaming Device—Portable | 13 |
| Media Server or Media Adapter | 14 |
| Network Storage Device | 15 |
| External Card | 16 |
| Internal Card | 17 |
| Ultra-Mobile PC | 18 |
| Notebook Computer | 19 |
| PDA (Personal Digital Assistant) | 20 |
| Printer or Print Server (includes scanner and/or fax capability) | 21 |
| Phone—Dual-Mode | 22 |
| Phone—Single-Mode | 23 |
| Smartphone—Dual-Mode | 24 |
| Smartphone—Single-Mode | 25 |
| Tablet | 26 |
| Static sensor | 27 |
| Mobile sensor | 28 |
| Static emergency device | 29 |
| Mobile emergency device | 30 |
| AR/VR headset | 31 |
| Smart watch | 32 |
| Smart wearable | 33 |
| Smart appliance | 34 |
| Smart assistant | 35 |
| Mobile AP | 36 |
| Reserved | ~~26~~37-220 |
| Other devices | 221 |
| Reserved | 222–255 |

**TGmf Editor: *Instruction: In REVme D7.0, please insert at the end of 9.4.2.67.5***

The format for the Device Model subelement is shown in Figure 9-517 (Device Model subelement format).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Subelement ID | Length | Device Model |
| Octets: | 1 | 1 | variable |
| **Device Model subelement format** |  |  |  |

The Device Model field contains a UTF-8 string indicating the model of the reporting device.

The format for the Operating System Version subelement is shown in Figure 9-518 (Operating System Version subelement format).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Subelement ID | Length | Operating System Version |
| Octets: | 1 | 1 | variable |
| **Operating System Version subelement format** |  |  |  |

The Operating System Version field contains a UTF-8 string indicating the version of the primary operating system of the reporting device.

The format for the Vendor OS Version subelement is shown in Figure 9-519 (Vendor OS Version subelement format).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Subelement ID | Length | Vendor OS Version |
| Octets: | 1 | 1 | variable |
| **Vendor OS Version subelement format** |  |  |  |

The Vendor OS Version field contains a UTF-8 string indicating the version of a vendor addition to the primary operating system of the reporting device.

The format for the Service Provider Version subelement is shown in Figure 9-518 (Service Provider Version subelement format).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Subelement ID | Length | Service Provider Version |
| Octets: | 1 | 1 | variable |
| **Service Provider Version subelement format** |  |  |  |

The Service Provider Version field contains a UTF-8 string indicating the service provider software version for the reporting device.

The format for the Power Source subelement is shown in Figure 9-520 (Power Source subelement format).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Subelement ID | Length | Power Source |
| Octets: | 1 | 1 | 1 |
| **Power Source subelement format** |  |  |  |

The Power Source field identifies the source of power of the reporting device and is one of the values in Table 9-249 (Power Sources).

|  |  |
| --- | --- |
| **Power Sources** |  |
| **Power Source** | **Value** |
| Mains | 0 |
| Battery | 1 |
| Reserved | 2–255 |

The format for the Session Issue Report subelement is shown in Figure 9-521 (Previous Session Issue Report subelement format).

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | Subelement ID | Length | Failure Epoch Timestamp | BSSID | RSSI of Peer | Issue Reason |
| Octets: | 1 | 1 | 4 | 6 | 1 | Variable |
| **Session Issue Report subelement format** |  |  |  |  |  |  |

The Failure Epoch Timestamp field contains an unsigned integer that identifies the epoch time when the reported issue occurred, that is the time of the issue expressed in seconds elapsed since January 1st 1970 UTC. Value 0 indicates that the epoch time of the issue is unknown.

The BSSID field identifies the BSS to which the reporting STA was associated or the AP is hosting at the time of the reported issue.

The RSSI of Peer field identifies the RSSI of the peer measured by the reporting STA.

The Issue Reason field contains a UTF-8 string that indicates the reason for the issue.

The format for the AP Firmware Update Status subelement is shown in Figure 9-522 (AP Firmware Update Status subelement format).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Subelement ID | Length | AP Firmware Update Status |
| Octets: | 1 | 1 | 1 |
| **AP Firmware Update Status** |  |  |  |

The AP Firmware Update Status field contains an unsigned integer that indicates the firmware update status of the AP. Value 0 indicates that the AP is using the latest firmware version. Value 1 indicates that firmware update is available. Vaule 2-255 is reserved.

The format for the Device Name subelement is shown in Figure 9-523 (Device Name subelement format).

|  |  |  |  |
| --- | --- | --- | --- |
|  | Subelement ID | Length | Device Name |
| Octets: | 1 | 1 | Variable |
| **Device Name** |  |  |  |

The Device Name field contains a UTF-8 string that is the friendly name of the device. This should only be provided if the user configured a custom name or the firmware of the device has reason to believe it can provide a name that is better than the default name the client software will provide for it based on the model.

**TGmf Editor: *Instruction: In REVme D7.0, please modify C.3 as follows:***

Dot11WNMDiagMfrInfoReportEntry ::=

SEQUENCE {

dot11WNMDiagMfrInfoRprtIndex Unsigned32,

dot11WNMDiagMfrInfoRprtRqstToken OCTET STRING,

dot11WNMDiagMfrInfoRprtIfIndex InterfaceIndex,

dot11WNMDiagMfrInfoRprtEventStatus INTEGER,

dot11WNMDiagMfrInfoRprtMfrOi OCTET STRING,

dot11WNMDiagMfrInfoRprtMfrIdString OCTET STRING,

dot11WNMDiagMfrInfoRprtMfrModelString OCTET STRING,

dot11WNMDiagMfrInfoRprtMfrSerialNumberString OCTET STRING,

dot11WNMDiagMfrInfoRprtMfrFirmwareVersion OCTET STRING,

dot11WNMDiagMfrInfoRprtMfrAntennaType OCTET STRING,

dot11WNMDiagMfrInfoRprtCollocRadioType INTEGER,

dot11WNMDiagMfrInfoRprtDeviceType INTEGER,

dot11WNMDiagMfrInfoRprtCertificateID OCTET STRING,

dot11WNMDiagMfrInfoRprtDvcModelString OCTET STRING,

dot11WNMDiagMfrInfoRprtOSVersionString OCTET STRING,

dot11WNMDiagMfrInfoRprtVendOSString OCTET STRING,

dot11WNMDiagMfrInfoRprtSPVerString OCTET STRING,

dot11WNMDiagMfrInfoRprtPwrSrcString OCTET STRING}

dot11WNMDiagMfrInfoRprtDeviceType OBJECT-TYPE

SYNTAX INTEGER {

reserved(0),

referenceDesign(1),

accessPointWirelessRouterSoho(2),

enterpriseAccessPoint(3),

broadbandGateway(4),

digitalStillCamera(5),

portableVideoCamera(6),

networkedWebCamera(7),

digitalAudioStationary(8),

digitalAudioPortable(9),

setTopBoxMediaServer(10),

tvMonitorDigitalPictureFrame(11),

gameConsoleGameAdaptor(12),

gamingDevice(13),

mediaServerMediaAdaptor(14),

networkStorageDevice(15),

externalCard(16),

internalCard(17),

ultraMobilPc(18),

notebookComputer(19),

personalDigitalAssistant(20),

printerPrintServer(21),

phoneDualMode(22),

phoneSingleMode(23),

smartphoneDualMode(24),

smartphoneSingleMode(25),

tablet(26),

staticSensor(27),

mobileSensor(28),

staticEmergencyDevice(29),

mobileEmergencyDevice(30),

arVrHeadset(31),

smartWatch(32),

smartWearable(33),

smartAppliance(34),

smartAssistant(35),

mobileAP(36),

otherDevices(221)

}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This is a status variable.

It is written by the SME when a management report is completed.

This attribute indicates the type of device in which the IEEE 802.11 STA resides."

::= { dot11WNMDiagMfrInfoReportEntry 12 }

***At the end of dot11WNMDiagMfrInfoReport TABLE, please insert the following entries:***

dot11WNMDiagMfrInfoRprtDvcModelString OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(0..255))

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This is a status variable.

It is written by the SME when a management report is completed.

This attribute indicates the Device model string for the reported Manufacturer Information STA Diagnostic. The model attribute contains a UTF-8 string indicating the model of the device. This string is not null terminated."

::= { dot11WNMDiagMfrInfoReportEntry 14 }

dot11WNMDiagMfrInfoRprtOSVersionString OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(0..255))

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This is a status variable.

It is written by the SME when a management report is completed.

This attribute indicates the operating system string for the reported Manufacturer Information STA Diagnostic. The model attribute contains a UTF-8 string indicating the operating system of the device. This string is not null terminated."

::= { dot11WNMDiagMfrInfoReportEntry 15 }

dot11WNMDiagMfrInfoRprtVendOSString OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(0..255))

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This is a status variable.

It is written by the SME when a management report is completed.

This attribute indicates the vendor operating system string for the reported Manufacturer Information STA Diagnostic. The model attribute contains a UTF-8 string indicating the vendor-specific operating system of the device. This string is not null terminated."

::= { dot11WNMDiagMfrInfoReportEntry 16 }

dot11WNMDiagMfrInfoRprtSPVerString OBJECT-TYPE

SYNTAX OCTET STRING (SIZE(0..255))

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This is a status variable.

It is written by the SME when a management report is completed.

This attribute indicates the operating system string for the reported Manufacturer Information STA Diagnostic. The model attribute contains a UTF-8 string indicating the the service provider version of the device. This string is not null terminated."

::= { dot11WNMDiagMfrInfoReportEntry 17 }

dot11WNMDiagMfrInfoRprtPwrSrcString OBJECT-TYPE

SYNTAX INTEGER {

Mains (0),

Battery (1)

}

MAX-ACCESS read-only

STATUS current

DESCRIPTION

"This is a status variable.

It is written by the SME when a management report is completed.

This attribute indicates the Power source string for the reported Manufacturer Information STA Diagnostic. The model attribute contains an integer indicating the source of power for the device. This string is not null terminated."

::= { dot11WNMDiagMfrInfoReportEntry 18 }