IEEE P802.11
Wireless LANs

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| STA and AP |
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Abstract

This document proposes a modified nomenclature for STA and non-AP STA.

**Introduction**

802.11 defines the STA as the basic addressable unit for 802.11 communication, and derives from it the AP and the non-AP STA:

**station (STA):** A logical entity that is a singly addressable instance of a medium access control (MAC) and physical layer (PHY) interface to the wireless medium (WM).

**access point (AP):** An entity that contains one station (STA) and provides access to the distribution system services, via the wireless medium (WM) for associated STAs. An AP comprises a STA and a distribution system access function (DSAF).

**non-access-point (non-AP) station (STA):** A STA that is not contained within an access point (AP).

However, outside 802.11, there is typically reference only to AP and STA, where AP has the same meaning as in 802.11, but STA refers to non-AP STA.

**Proposal**

A possible way to simplify the 802.11 nomenclature might be to rename the generic 802.11 STA into something like AU (addressable unit) and then replace all occurrences of non-AP STA with STA. The above definitions would become as follows in this case:

**addressable unit (AU):** A logical entity that is a singly addressable instance of a medium access control (MAC) and physical layer (PHY) interface to the wireless medium (WM).

**access point (AP):** An entity that contains one addressable unit (AU) and provides access to the distribution system services, via the wireless medium (WM) for associated stations (STAs). An AP comprises an AU and a distribution system access function (DSAF).

**station (STA):** An AU that is not contained within an access point (AP).

The editorial process would consist of the following steps, to be executed in the described order:

1. replace all instances of "STA" without prefix "non-AP" with "AU"

this should exclude from replacement:

non-AP STA

non-AP CMMG STA

non-access point (non-AP) QoS stations (STAs)

note: occurrences of "a STA" should be changed to "an AU"

further exclusions are listed below

the intent in this replacement is to catch all generic instances of STA and rename them to AU

1. replace all instances of "non-AP STA" with "STA"

this step enters the term STA in the new definition (as an AU not contained within an AP)

1. delete all instances of "non-access point (non-AP)"

this covers the definitions section

1. delete all instances of "non-AP and"

this covers instances of "non-AP and non-PCP STA", of which there are quite a few

1. delete all instances of "non-AP"

this step cleans up remaining occurrences of "non-AP". However, prior to executing this step we may review each remaining instance of non-AP to see why it was not caught in any of the previous steps.

There are cases in which STA probably already meant non-AP STA. For example in the current definition of AP:

**access point (AP):** An entity that contains one station (STA) and provides access to the distribution system services, via the wireless medium (WM) for **associated STAs**. An AP comprises a STA and a distribution system access function (DSAF).

These cases will not be (more) broken when replaced with AU in step 1, but they would become more visible and probably will need be changed at some point. However, it will be better to catch as many of them beforehand, and exclude them from replacement in step 1.

Therefore, excluded from replacing "STA" with "AU" in step 1 are:

associated STA

non associated STA

nonassociated STA

authenticated STA

nonauthenticated STA

TDLS STA

TDLS initiator STA

TDLS responder STA

S1G relay STA

relay STA

PSMP STA

802.11 is also not entirely consistent in its use of STA as being a generic 802.11 device. For example, in some cases an AP and a non-AP STA are introduced, and the section subsequently appears to refer to the non-AP STA as the STA. But STA can refer to both the AP and the non-AP STA that were introduced, so which is it? Presumably in most cases the non-AP STA, but the use of STA is incorrect in this case. Examples:

2210.47 (in 11.3.5.11 Service characteristic indication during association)

**A non-AP STA** may indicate to **the AP** its service characteristic information during association by including the Service Characteristic field in the AID Request element in the (Re)Association Request frame. The AP may assign a particular AID **to the STA** taking into account the received service characteristic information **from the STA**.

2290.28 (in 11.10.19 Multicast diagnostic reporting)

**An AP** may send a Multicast Diagnostic request consisting of one or more Multicast Diagnostic requests in a Radio Measurement Request frame **to a non-AP STA** that has indicated support of the multicast diagnostic capability or to a multicast group address if all associated non-AP STAs support the multicast diagnostic capability. If **the STA** accepts the request it shall count the number of received MSDUs with the specified group address and **the STA** shall record the maximum observed PHY data rate of the frames that contained these MSDUs during the requested Measurement Duration.

Such occurrences of STA probably would need to be fixed regardless of whether the above edits are made.