IEEE P802.11
Wireless LANs

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| CR for Seamless Roaming Clause 4 |
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Abstract

This document proposes CR for seamless roaming feature for 11bn.

It addresses CID 3911.

**Revisions:**

* Rev 0: Initial version of the document.

CIDs and proposed resolution

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| **CID** | **Commenter** | **Clause** | **Pg/Ln** | **Comment** | **Proposed Change** | **Resolution** |
| 3911 | Binita Gupta | 4 | 23 | Clause 4 needs to cover reference model and architecture for SMD (Seamless mobility domain) as agreed per SFD motions, covering SMD framework that supports both distributed SMD with multiple per-AP MLD MAC SAPs and centralized SMD with single MAC-SAP per SMD. | Add a clause covering Reference model for SMD architecture and framework. Commenter will bring a contribution. | Revised.Added a new 4.9.x subclause providing a reference model for SMD, including for the distributed SMD mode and the centralized SMD mode.TGbn editor, please make changes tagged with #3911. |

***TGbn editor: please add the following new subclause in clause 4.9 (CID #3911)***

**﻿4.9.x Reference model for seamless mobility domain (SMD)**

An SMD consists of multiple AP MLDs where a non-AP MLD can use the SMD BSS transition procedure to transition between the AP MLDs within the SMD. An SMD includes an SMD Management Entity (SMD-ME) that provides SMD-level authentication and association functions (see 11.3 (STA authentication and association)), IEEE 802.1X Authenticator functions at the SMD level and RSNA key management functions at the SMD level, for non-AP MLDs across all the AP MLDs within the SMD.

A Reference model for an SMD is shown in Figure xx 1 (Reference model for an SMD with 3 AP MLDs).

Note: The SMD boundary top is left open in Figure xx1 (Reference model for an SMD with 3 AP MLDs) to indicate that the SMD-ME can contain other functions that are not defined by this standard.

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Figure xx1 - Reference model for an SMD with 3 AP MLDs

The SMD-ME acts as an anchor point for SMD level association for non-AP MLDs. The SMD-ME maintains the authentication and association states for non-AP MLDs that associate with the SMD-ME. The IEEE 802.1X Authenticator of the SMD-ME is identified by an SMD Identifier (a 48-bit MAC address) of the SMD. The SMD-ME maintains the SMD-level PMKSA and PTKSA that are established between the non-AP MLD and the SMD-ME as part of authentication and association with the SMD-ME.

In an SMD, upper MAC functions are split between the AP MLDs and the SMD-ME as shown in Figure xx-1 by an SMD Upper MAC Sublayer 1 within the AP MLD and an SMD Upper MAC Sublayer 2 within the SMD-ME. The link specific lower MAC functions are provided by the MLD lower MAC as in the MLD architecture. In a distributed SMD architecture (see below), during ST for a non-AP MLS, the SMD Upper MAC Sublayer on current AP MLD interfaces with the SMD Upper MAC Sublayer on the target AP MLD to transfer context information for the non-AP MLD.

Two deployment modes are defined for the SMD:

* Distributed SMD mode where each AP MLD in the SMD has its own MAC-SAP with the DS
* Centralized SMD mode where the entire SMD has a single MAC-SAP with the DS

A Reference model for an SMD in the distributed SMD mode is shown in Figure xx2 (Reference model for an SMD in distributed SMD mode). As shown, each of the three AP MLDs in the SMD (AP MLD1, AP MLD2 and AP MLD3) has its own MAC-SAP to the DS for DL and UL data path. The 802.1X Controlled and Uncontrolled port filtering for the data path connection to the DS is managed by each AP MLD.



Figure xx2 – Reference model for an SMD in distributed SMD mode

A Reference model for an SMD in the centralized SMD mode is shown in Figure xx3 (Reference model for an SMD in centralized SMD mode). As shown, the entire SMD has a single MAC SAP to the DS exposed by the SMD Upper MAC Sublayer in the SMD-ME. The 802.1X Controlled and Uncontrolled port filtering for the data path connection to the DS is managed by the SMD-ME.

Note: In a centralized SMD mode each AP MLD would still have a MAC-SAP at the AP MLD for legacy devices that associate with the AP MLD, as shown in Figure xx3.



 Figure xx3 – Reference model for an SMD in a centralized SMD mode