IEEE P802.11  
Wireless LANs

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| Resolution of MAC Randomization Comments | | | | |
| Date: 2017-09-12 | | | | |
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Abstract

This submission proposes resolutions to CIDs 10006, 10008, 10009, 10012, 10014, 10015, and 10016

***Instruct the editor to modify section 4.5.4.10 as shown:***

**4.5.4.10 MAC Privacy Enhancements**

To mitigate this sort of traffic analysis a STA can support the ability to periodically and randomly change its MAC addresses and reset counters and seeds prior to association. Post-association, a non-AP STA can use a locally generated random MAC address with a single sequence number space and seeded data scrambler for an established network connection or it can conform to a locally-administered addressing plan. While discovering networks, a STA can refrain from gratuitously transmitting Probe Request frames containing SSIDs of favored BSS networks.

***Instruct the editor to modify section 12.2.10 as shown:***

**12.2.10 Requirements for support of MAC privacy enhancements**

A non-AP STA shall set dot11MACPrivacyActivated to true to enable MAC privacy enhancements during discovery, BSS transition, and membership in a BSS. When dot11MACPrivacyActivated is true, a non-AP STA shall periodically change its MAC address to a random value. However, the non-AP STA shall not change its MAC address while associated to a BSS or ESS, or during a transactional exchange, for example transmitting Public Action frames for preassociation discovery, or during the creation of state on an AP using preassociation capabilities, for example RSN pre-authentication, FT over-the-DS, etc. The smaller the period of MAC address change, down to a single transmitted frame per MAC address, the greater the privacy these enhancements afford. The actual period used when changing a MAC address is implementation dependent and outside the scope of this standard.

When the dot11LocallyAdministeredMACConfig is set to true, the non-AP STA that discovers a BSS of interest, and wishes to establish a connection, configures its MAC address according to the rules of the local address space for the selected BSS prior to establishing a connection to the BSS. It shall retain that MAC address for the duration of its BSS connection.

When the dot11LocallyAdministeredMACConfig is set to false, the non-AP STA that discovers a BSS of interest, wishes to establish a connection, and does not have any transactional state bound to a random MAC address, shall change its MAC address to a random value prior to establishing a connection to the BSS. The non-AP STA that attempts to establish a connection using the state created with an AP using a prior random MAC address-for instance RSN pre-authentication state or FT state established over-the-DS-shall change its MAC address back to the MAC address used when the state was created. Once connected, it shall retain that MAC address for the duration of its BSS connection.

Every time a MAC address is changed to a new random value, counters in all sequence number spaces used to identify each MSDU or MMPDU shall be reset (see 10.3.2.11.2), and the OFDM data scrambler shall be reseeded per the procedure described in 17.3.5.5, if applicable.

***Instruct the editor to modify Annex C.3 as shown:***

**C.3 MIB Detail**

***In Annex C.3, insert entries at the end of the “Dot11StatonConfigEntry ::= SEQUENCE” list as follows :***

dot11FutureChannelGuidanceActivated                   TruthValue,

dot11FILSActivated                                    TruthValue,

dot11S1GOptionImplemented                             TruthValue,

dot11SolicitedPADActivated                            TruthValue,

dot11UnsolicitedPADActivated                          TruthValue,

dot11MACPrivacyActivated                              TruthValue,

dot11GASExtensionImplemented                          TruthValue,

dot11LocallyAdministeredMACConfig TruthValue

***In Annex C.3, change OPTIONAL-GROUPS as follows:***

-- OPTIONAL-GROUPS {

-- dot11TVWSComplianceGroup,

-- dot11PADComplianceGroup }

***In Annex C.3, insert new OBJECT-TYPE definitions as follows:***

dot11SolicitedPADActivated OBJECT-TYPE SYNTAX TruthValue

MAX-ACCESS read-write STATUS current DESCRIPTION

"This is a control variable.

It is written by an external management entity or the SME. Changes take effect as soon as practical in the implementation.

This attribute when true, indicates that the capability of the STA to operate solicited PAD with external networks is enabled. The capability is dis- abled otherwise."

DEFVAL {false}

::= { dot11StationConfigEntry 167 }

dot11UnsolicitedPADActivated OBJECT-TYPE SYNTAX TruthValue

MAX-ACCESS read-write STATUS current DESCRIPTION

"This is a control variable.

It is written by an external management entity or the SME. Changes take effect as soon as practical in the implementation.

This attribute when true, indicates that the capability of the STA to operate unsolicited PAD with external networks is enabled. The capability is dis- abled otherwise."

DEFVAL {false}

::= { dot11StationConfigEntry 168 }

dot11GASExtensionImplemented OBJECT-TYPE SYNTAX TruthValue

MAX-ACCESS read-only STATUS current DESCRIPTION

"This is a capability variable. Its value is determined by device capabili- ties. This attribute, when true, indicates that the STA is capable of operating in GAS extension in GAS frame exchanges. Otherwise, it is false. The default value of this attribute is false."

DEFVAL {false}

::= { dot11StationConfigEntry 169 }

dot11MACPrivacyActivated OBJECT-TYPE SYNTAX TruthValue

MAX-ACCESS read-write STATUS current DESCRIPTION

"This is a control variable.

It is written by an external management entity or the SME. Changes take effect

as soon as practical in the implementation. This attribute when true, indicates that the STA enables MAC privacy considerations. The capability is disabled otherwise."

DEFVAL {false}

::= { dot11StationConfigEntry 170 }

dot11LocallyAdministeredMACConfig OBJECT-TYPE SYNTAX TruthValue

MAX-ACCESS read-write STATUS current DESCRIPTION

"This is a control variable.

It is written by an external management entity or the SME. Changes take effect as soon as practical in the implementation.

This attribute when true, indicates that the the STA has been configured to operate in a network whose local address space is managed. The capability is disabled otherwise."

DEFVAL {false}

::= { dot11StationConfigEntry 171 }

***In Annex C.3, insert the following after the "dot11FineTimingMeasurement object-group ":***

dot11PADComplianceGroup OBJECT-GROUP

OBJECTS {

dot11SolicitedPADActivated, dot11UnsolicitedPADActivated, dot11LocallyAdministeredMACConfig

}

STATUS current

DESCRIPTION

"This object group provides the objects from the IEEE 802.11 MIB required to manage pre-association discovery functionality."

::= { dot11Groups 20 }

**References:**