IEEE P802.11
Wireless LANs

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| Disambiguating SYNRA |
| Date: 2016-01-19 |
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Abstract

Resolution of some comments from LB227 relating to disambiguating addresses that might or might not be SYNRAs.

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# CID 1402

**Comment:** "48-bit MAC addresses in the range 33-33-00-00-00-00 to 33-33-FF-FF-FF-FF are used for IPv6 multicast.

In some case, the SYNRA address is conflicted with IPv6 Multicast MAC address.

See the following example.

B0:1

B1:1

B2:0 (Basic SYNRA)

B3:0 (Basic SYNRA)

B4:1 (Other AID)

B5:1 (AID Bitmap Offset)

B6:0 (AID Bitmap Offset)

B7:0 (AID Bitmap Offset)

When the first 8 bits of the SYNRA structure are set to above and the second 8 bits of the SYNRA structure are also set to b11001100, the SYNRA address is exactly matched with the IPv6 multicast MAC address.

In such case, the problem is that the STA using the IPv6 multicast can't distinguish the address structure of the Address 1 field.

Remove the SYNRA structure or get an approval for the use of the duplicated MAC address block from IANA."

**Proposed Change:** As per comment.

**Resolution: Revise:** It is possible for the receiver to determine if Address 1 is a MAC address or a SYNRA through context. See draft changes to clarify this in 11-17/0154. See also CID 1444.

# CID 1444

**Comment:** I'm not sure about this conditions (1). What if a GLK STA is getting a non-SYNRA groupcast from a GLK AP. Shouldn't that always be discarded?

**Proposed Change:** Fix.

**Resolution: Revise:** The draft needs to be clarified on how a receiver determines if Address 1 is a MAC address or a SYNRA through context. See draft changes to accomplish this in 11-17/0154. See also CID 1402.

# Discussion

SYRNA is only used is transmission of MPDUs from an AP. Thus we need only consider receipt of an MPDU by a STA associated with an AP, in particular that the STA can tell if the RA is a MAC address or a SYNRA.

One possible decision tree, with notes related to the 11ak draft, is as follows:

If Address 1 is unicast, it cannot be a SYNRA.

Given that Address 1 is groupcast:

 If the MPDU is 3-address format, it cannot be a SYNRA and the draft should prohibit treating it as one.

 Given that the MPDU is 4-address format (or an A-MPDU):

 If the AP is non-GLK, the Address 1 cannot be a SYNRA. This must be something proprietary.

 Given that the AP is GLK:

 If the STA is GLK, Address 1 MUST be a SYNRA. If it does not meet the SYNRA restrictions, it is discarded.

 If the STA is non-GLK, then the GLK AP must be one that allows association by non-GLK STAs. It is important that the STA discard the 4-address (or A-MPDU) MPDU in this case. We should add an appropriate NOTE to the draft.

# Changes in Draft Text

#### 4.3.27.1 General

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The four-address frame format can be used in GLK transmissions of data frames. The use of the four-address frame format is required for such MPDUs if the frame’s SA, TA, RA and DA fields (for the source address, transmitter address, receiver address and destination address) are all different from each other or the RA is a group address. The three address frame format can be used, as defined by Table 9-3 (To/From DS combinations in Data frames), provided the addresses are consistent with Table 9-26 (Address field contents) and the RA is not a group address.

As described in 4.3.27.3 (Selective reception of group addressed frames), when a GLK AP transmits a Data frame whose RA contains a group address, the contents of the RA will be a synthetic receiver address (SYNRA). A GLK non-AP STA supports selective reception of group addressed frames by supporting SYNRA reception.

A SYNRA is a group addressed RA used by a GLK AP to forward frames to a subset of GLK non-AP STAs, as required by IEEE Std 802.1Q bridges. The use of a SYNRA can improve bandwidth usage in some cases. SYNRA addressing is only used in GLK AP transmissions.

#### 4.3.27.3 Selective reception of group addressed frames

For the reasons given below, when transmitting a data MPDU that has a group addressed RA to a set of receiving STAs, the GLK transmitter must be able to transmit those MSDUs so that it is accepted by a subset of the associated GLK STAs, as provided by the IEEE Std 802.1Q bridge.

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Implementation of this selective reception facility in a BSS case includes use of a synthetic group address RA (SYNRA addressing, see 9.3.2.1.2 (Address and BSSID fields)). As an alternative to the use of a SYNRA, a copy of the data frame can be sent to each intended receiver using individually addressed MPDUs, a process known as serial unicast. In either case, an appropriate address format is needed because the DA will differ from the RA for serial unicast and the three address format is not used with SYNRA. In the case of IBSSes or MBSSes the addressing choice for MPDUs intended for a group of receivers is either a non-SYNRA group addressed RA or serial unicast, because SYNRA addressing is only used by APs.

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##### 9.3.2.1.2 Address and BSSID fields

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The RA field is the individual address of the STA that is the immediate intended receiver of the frame or the group address of the STAs that are the immediate intended receivers of the frame.

When a GLK AP data frame transmission is sent to an individual destination address that is not known by the corresponding 802.1Q bridge or a group destination address, the RA might be a SYNRA (see 10.62 (Addressing of GLK data frame transmission)). The structure of a SYNRA is shown in Figure 9-53a (SYNRA structure).

NOTE— Use of four address frames with an RA having both the group and local bits one by a GLK AP in transmissions intended for associated non-GLK STAs is discouraged since it might lead to unintended reception of such frames by GLK non-AP STAs.

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## 10.63 SYNRA address filtering operation

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When a GLK non-AP STA receives a group addressed RA in an MPDU from its associated GLK AP, if the MPDU is in three address format or the RA is not a SYNRA or the SYNRA Type subfield does not represent a supported SYNRA Type, or the From DS and To DS subfields in the Frame Control field are not both 1, then the non-AP STA shall discard the frame, and not use the frame for updating any scoreboard used for GLK-GCR block ack. All other group addressed Data frames received from the associated GLK AP shall be counted as received for the purposes of the scoreboard used for GLK-GCR block ack, even if discarded based on the subsequent SYNRA filtering, as described below.

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