

Cl 00 SC 0 P- L- # 9  
 Roger Marks None entered

Comment Type T Comment Status A

At the meeting of the IEEE Registration Authority Committee (RAC) on 2015-11-12, during discussion of P802c/D0.1, I suggested that, upon approval of the eventual standard, it would be appropriate for the RAC to amend Reference [B8] ["Guidelines for Use Organizationally Unique Identifier (OUI) and Company ID (CID)"]. Subsequent discussion by the RAC suggested that the IEEE 802.1 Working Group should propose the amendment. Note: It appears that the two related RAC tutorials: ["Guidelines for 48-Bit Global Identifier (EUI-48)" and "Guidelines for 64-bit Global Identifier (EUI-64)"] are not affected by P802c, since they consider only global addresses.

*SuggestedRemedy*

Include draft amendments of Reference [B8] with packages circulated in Working Group ballot and Sponsor Ballot of P802c. The amendments should target the sections entitled "Structure of OUI and CID" and "Company ID" (under "Use of Terms"). It should define the Y and Z bits and and the four [Y,Z] quadrants of the local space, indicating that RA CID assignments are expected to be limited to [Y,Z]=[0,1], forming the basis of ELIs. It should also summarize the usage of the SAI and AAI quadrants, and it should specify that the SAI space is administered by the RA, with part of the space allocated for assignments administered by 802. Also, it should specify that the quadrant that remains unspecified in the 802c draft ([Y,Z]=[1,0]) is reserved by the RA (not by 802).

Response Response Status C

ACCEPT IN PRINCIPLE.

Include draft amendment of Reference [B8] with packages circulated in Working Group ballot and Sponsor Ballot of P802c. The amendments should target the sections entitled "Structure of OUI and CID" and "Company ID" (under "Use of Terms"). It should define the Y and Z bits and and the four [Y,Z] quadrants of the local space, indicating that RA CID assignments are expected to be limited to [Y,Z]=[0,1], forming the basis of ELIs. It should also summarize the usage of the SAI and AAI quadrants per the option described in P802c, and it should specify that the SAI space is administered by the RA, with part of the space allocated for assignments administered by 802. Also, it should specify that the quadrant that remains unspecified in the 802c draft ([Y,Z]=[1,0]) is reserved by the RA (not by 802).

Cl 8 SC 8.4 P3 L3 # 40  
 Brian Weis None entered

Comment Type TR Comment Status R

IEEE 802-2014 has a note that states "MA-L, MA-M, and MA-S assignments do not apply to local MAC addresses.". Clause 8.4.3 does seem to change this statement in that an ELI uses an MA-L/OUI to be used as part of a local address. But isn't the statement still true for MA-M and MA-S? (The latter part of the Note referring the reader to the IEEE RA web site is obviously superceded by 802c and should not be carried forward.)

*SuggestedRemedy*

Add a note or couple of sentences describing the relationship of MA-L, MA-M, and MA-S to local addresses.

Response Response Status C

REJECT.

MA-L, MA-M, and MA-S assignments are applicable to universal addresses but do not apply to local addresses. As detailed in the draft, ELI is based on a CID, not on an OUI.

The draft has deleted the note.

Cl 8 SC 8.4 P3 L 18 # 17  
 Mick Seaman None entered

Comment Type TR Comment Status A

This amendment concentrates on address assignment protocols and ignores the fact that a local administrator may wish to assign local addresses, and indeed that there can be multiple administrators (certainly if you count IEEE standards and the RAC). MAC Address assignment is (most regrettably) being moved inexorably in the direction of greater complexity and confusion. Since the AAI space will inevitably be completely consumed by randomized allocation procedures in support of privacy, and the design (and in some cases the use) of these procedures will be under vendor control and/or equipment user control and not the control of any local network administrator, this amendment effectively proposes removal of local administrative control over address assignment - unless each local administrator applies for a CID (which would be a very bad idea if it took hold, since having each end user organization - or even end user site location - have a CID could rapidly exhaust the whole CID space).

*SuggestedRemedy*

Ensure that there is a space available for address assignment by local administrator that is separate from the proposed AAI space, preferably by removing the CID provisions and returning that space to local network administrator control (with some guidelines in space partitioning where the local network has multiple administrators).

Response Response Status C

ACCEPT IN PRINCIPLE  
 Specify a block of CIDs for pure local administration, and request that the RAC reserve that block. That provides 16.7M addresses, per CID, for the local administrator, each of which will avoid conflict with other protocol-assigned addresses in the spaces specified in the standard. That should be enough and would eliminate the need for each administrator to get a unique CID. Ultimately, though, the administrator would need to guard against ingress of frames with arbitrary, non-administered local addresses, regardless of the administered space.

Cl 8 SC 8.4 P3 L 19 # 28  
 Hal Keen None entered

Comment Type T Comment Status A

I write to pick up on the following comment from Mick Seaman: This amendment concentrates on address assignment protocols and ignores the fact that a local administrator may wish to assign local addresses, and indeed that there can be multiple administrators (certainly if you count IEEE standards and the RAC). MAC Address assignment is (most regrettably) being moved inexorably in the direction of greater complexity and confusion. Since the AAI space will inevitably be completely consumed by randomized allocation procedures in support of privacy, and the design (and in some cases the use) of these procedures will be under vendor control and/or equipment user control and not the control of any local network administrator, this amendment effectively proposes removal of local administrative control over address assignment - unless each local administrator applies for a CID (which would be a very bad idea if it took hold, since having each end user organization - or even end user site location - have a CID could rapidly exhaust the whole CID space)." I considered expressing similar misgivings in my own response, but refrained because I understood the present draft to properly maintain the concept of local administration. That is, it did not excise a large chunk from the three-decades-established locally administered space and commit it to exclusively standardized use. Rather, it provided for a way in which, entirely under the authority of local administration, that space could be employed in an environment intended to support certain uses. The distinction lies in whether local administrators may choose an alternative to the structure provided. I took this to be the reason the focus was on address assignment protocols, that being the case for which new provisions are needed. Since I submitted my ballot, some of the material in the one from Roger Marks has raised new misgivings. How does the RAC view this matter? Does it see this as permanently devoting the locally administered MAC address space to a new use, in effect universally administered although providing addresses which are not globally unique? I would be opposed to that course, and hope that any registration authority would see it as perilous. Perhaps we need to clarify the scope of locally administered address domains--even if it means revising the scope of this amendment."

*SuggestedRemedy*

Response Response Status C

ACCEPT IN PRINCIPLE.  
 Clarify, in 8.4.1, that the local administrator can assign addresses anywhere in the local space. Add to 8.4.1 a sentence introducing an optional Structured Local Address Plan. Add, as 8.4.3, a description of the optional Structured Local Address Plan, divided into four quadrants, to help distinguish that structure from the general administrator's of the entire space. Change 8.4.3, 8.4.4, and 8.4.5 (and a new subclause describing the fourth quadrant) into subclauses under the new 8.4.3.

Cl 8 SC 8.4 P5 L5 # 30  
 Mick Seaman None entered

Comment Type TR Comment Status A

This clause contains a number of apparent conformance recommendations without clarifying who or what needs to be in conformance or might claim conformance.

*SuggestedRemedy*

Clarify the following: (a) the standard makes recommendations to be followed by a local administrator where the responsibility for address administration is to be divided (b) allows for a claims of conformance in respect of various address administration protocols and procedures, specifically: (1) a claim that an address administration protocol (or its implementation) uses only the space identified by CIDs within the ELI space [requirement on this claim is to provide a way that the local administrator can select which CIDs to use/permit]; (2) a claim that the address administration protocol allocates only addresses within the SAI space (3) a claim that the address administration protocol uses only addresses within the AAI space.

Response Response Status C

ACCEPT IN PRINCIPLE.  
 See resolution of Comment #32.

Cl 8 SC 8.4 P5 L8 # 31  
 Mick Seaman None entered

Comment Type TR Comment Status A

IEEE Std 802 lacks a conformance clause and a PICS and even a description of conformance terminology. Yet it would seem that the interpretation and force of some of the statements in this amendments depends on understanding that terminology. It is not a reasonable assumption that the reader will be familiar with the IEEE standards manual and its default terminology, as that differs from use in other standards bodies.

*SuggestedRemedy*

Add a requirements terminology clause. Suitable boiler plate text can be found in IEEE 802.1Q-2014 (start first sentence with "Requirements placed ..", leave out the NOTE, the PCS discussion unless a PICS is to be included, and the very last sentence about "allow")amongst other places.

Response Response Status C

ACCEPT IN PRINCIPLE.  
 Normative language is specified in IEEE-SA Style Manual. Underlying standard (IEEE Std 802) already uses normative language without such definitions. Should be considered at the next revision. Normative language in the amendment will be carefully considered.

Cl 8 SC 8.4 P5 L18 # 29  
 Mick Seaman None entered

Comment Type TR Comment Status A

The discussion of the use of multiple address assignment protocols needs to be generalized and moved to 8.4.1. Otherwise it is hard to escape the conclusion that this amendment is deprecating or indeed prohibiting all methods of local address assignment other than by "address assignment protocol". It is not until 8.4.7 that anything is said that is not within the context of address assignment protocol (first para of 8.4.7) and even that statement is open to interpretation.

*SuggestedRemedy*

In 8.4.1 clarify that a local administrator may assign local addresses using his or her choice of protocols and procedures, including (for example) prior to a system being used in the network, or by local (to the system) or remote (over the network) management, and may choose to delegate address assignment responsibility to other managers and/or a combination of address management protocols. Where responsibility is to be divided this standard makes that task easier by identifying various address spaces within the local address space.

Response Response Status C

ACCEPT IN PRINCIPLE.  
 See Comment #28.

Cl 8 SC 8.4 P5 L45 # 16  
 Mick Seaman None entered

Comment Type TR Comment Status A

This statement directly contradicts pg 5 line 10.

*SuggestedRemedy*

Change "SAI" to "AAI".

Response Response Status C

ACCEPT.

Cl 8 SC 8.4 P 6 L 27 # 33  
Mick Seaman None entered

Comment Type TR Comment Status A

This would seem to ban local address assignment by YANG/NETCONF unless an arbitrary restriction is imposed.

*SuggestedRemedy*

Remove the restriction that a protocols assignment has to be restricted to one of the address pools. This can be a recommendation for certain types of protocol, but a blanket statement implies a constraint on local administrators that is unreasonable.

Response Response Status C

ACCEPT IN PRINCIPLE.

The restriction in the draft is limited to "LANs in which local MAC addresses are assigned by multiple address assignment protocols."

Clarify this to reflect the language inserted per Comment #28, indicating that this applies to assignment using the Structured Local Addressing Plan.

Cl 8 SC 8.4 P 6 L 29 # 34  
Mick Seaman None entered

Comment Type TR Comment Status A

What does this "local administrator may" mean. Does it mean "without the benefit of an address protocol". What does it add to the conformance requirements in the Std 802. A local administrator is already permitted to do this.

*SuggestedRemedy*

Use "can" instead of may if this statement is only reiterating an existing provision of the standard. Clarify what it actually means if this means "without using any protocol".

Response Response Status C

ACCEPT IN PRINCIPLE.

Limit 8.4.7 to assignments using the Structured Local Addressing Plan. This would delete the sentence.

Cl 8 SC 8.4 P 6 L 35 # 18  
Mick Seaman None entered

Comment Type TR Comment Status A

The statement that address assignment protocols shall avoid duplicate assignments is a pious wish, not a practical conformance statement. Proposed and feasible protocols in the AAI space will (with non-zero probability) assign duplicates when using random procedures. So the statement is just motherhood and apple pie.

*SuggestedRemedy*

Remove the statement, it is only one of obvious intent/desire and is not practical beyond launching an argument about the meaning of "avoid".

Response Response Status C

ACCEPT IN PRINCIPLE.

Change "shall" to "should."

Cl 8 SC 8.4 P 6 L 37 # 19  
Mick Seaman None entered

Comment Type TR Comment Status A

The summary statements with "shall" in 8.4.7 only repeat conformance requirements already stated elsewhere. This duplication is not useful.

*SuggestedRemedy*

Use the definite statement "is" or "are" where requirements are simply repeated (either here or above) and insert a cross-reference to the one place where the normative requirement is made (i.e. where "shall" is used).

Response Response Status C

ACCEPT IN PRINCIPLE.

Remove duplicate and unnecessary "shall" statements, but retain the "shall statements" in the final subclause.

Cl 8 SC 8.4 P 6 L 37 # 32  
 Mick Seaman None entered

Comment Type TR Comment Status A

"only ELIs, SAIs, or AAIs" is ambiguous in this context. If a protocol can assign an address that is any on of these then it can assign any local addresses. Unfortunately this might be read to mean that a protocol can assign addresses from only one of these pools, in which case it would be necessary for an administrator wanting unrestricted assignment by protocol to run three different protocols.

SuggestedRemedy

Disambiguate.

Response Response Status C

ACCEPT IN PRINCIPLE.

Remove "Address assignment protocols shall assign only ELIs, SAIs, or AAIs." Change requirements statements on ELI, SAI, and AAI into requirements statements on protocols that assign ELI, SAI, and AAI.

Cl 8 SC 8.4.2 P 3 L 24 # 10  
 Hiroki Nakano None entered

Comment Type T Comment Status A

As the document mentions in Section 8.4.1, Uniqueness of MAC addresses is the fundamental premises of IEEE802 network operation and its breakage is fatal to the network. Until today, in order to keep the uniqueness, we depend on address assignment framework administered by human network operators and manufacturers of network equipment, though some of switch boxes have functionalities to avoid duplication of MAC addresses. The new mechanism proposed by this section has the same assumption. IMHO, it is the time to incorporate an appropriate framework and protocol that detect and prevent duplication of MAC addresses within a network, MECHANICALLY rather than manually.

In this case, the procedure to obtain a MAC address is divided to two parts. The first part is 'assignment' and the other part is 'validation of uniqueness.' The first part is almost the same as mentioned in Section 8.4.2, however, less strict rules are allowed, for example, totally random addresses. The second part checks uniqueness of the MAC address the first part assigns. When it fails, that is, detects duplication, system goes back to the first part and repeats them.

Let me mention the technical feasibility of the protocol for 'validation of uniqueness.' We have IEEE802.1X which checks something before a host is connected to a network. It is an idea to enable this protocol to check MAC addresses. Another idea is to define a protocol to share a MAC address list by flooding data among switches if you don't like centralized servers such as authentication servers.

I am not sure that this idea is suitable for this task group because the current PAR looks to be constructed with some concrete means in mind. I, however, request to the members to discuss a protocol to assure uniqueness of MAC addresses.

SuggestedRemedy

Add the following sentences:

Instead of disjoint address pools, administrators can use a standardized protocol checking uniqueness of MAC addresses. This protocol avoid duplication of MAC addresses and assure the fundamental premises of IEEE802 network operation.

Response Response Status C

ACCEPT IN PRINCIPLE.

Change "avoid duplicate assignments" to "avoid simultaneous use of duplicate addresses, per 8.4.1".

Cl 8 SC 8.4.2 P3 L 27 # 41  
 Brian Weis None entered  
 Comment Type E Comment Status A  
 The sentence describing assignment by multiple protocols could be clearer.  
 SuggestedRemedy  
 Replace the sentence beginning on line 27 with "For this reason, when multiple protocols assign local MAC addresses to devices on a LAN, each should be restricted to a disjoint subspace of the local MAC address space available on the LAN."  
 Response Response Status C  
 ACCEPT.

Cl 8 SC 8.4.2 P3 L 44 # 42  
 Brian Weis None entered  
 Comment Type E Comment Status A  
 Typo (plural should be singular)  
 SuggestedRemedy  
 Replace "A local MAC addresses" with "A local MAC address".  
 Response Response Status C  
 ACCEPT.

Cl 8 SC 8.4.3 P3 L 43 # 3  
 Rodney Cummings None entered  
 Comment Type E Comment Status A  
 Typo  
 SuggestedRemedy  
 Replace "addresses" with "address".  
 Response Response Status C  
 ACCEPT.

Cl 8 SC 8.4.3 P4 L 1 # 4  
 Rodney Cummings None entered  
 Comment Type T Comment Status A  
 Is it possible to take the OUI bits from an MA-L, and use them as the CID of an ELI?  
 SuggestedRemedy  
 Add a NOTE to answer this question.  
 Response Response Status C  
 ACCEPT IN PRINCIPLE.  
 Add to the end of the paragraph:  
 "Changing the X bit of an RA-assigned OUI is not authorized by the IEEE RA and does not result in a valid CID, and shall not be used as the basis of an ELI."

Cl 8 SC 8.4.4 P4 L 7 # 44  
 Brian Weis None entered  
 Comment Type E Comment Status A  
 Typo (wrong word)  
 SuggestedRemedy  
 Replace "may specific" with "may specify"  
 Response Response Status C  
 ACCEPT.

Cl 8 SC 8.4.4 P5 L 7 # 5  
 Rodney Cummings None entered  
 Comment Type E Comment Status A  
 Typo  
 SuggestedRemedy  
 Replace "specific" with "specify".  
 Response Response Status C  
 ACCEPT.

Cl 8 SC 8.4.4 P5 L 35 # 2  
 Craig Gunther None entered  
 Comment Type E Comment Status A  
 Missing word in sentence  
 SuggestedRemedy  
 Insert "by" or "in" in the following sentence: "...but may be specified \_by\_ other IEEE 802 standards."  
 Response Response Status C  
 ACCEPT.  
 Change to "in other IEEE 802 standards."

Cl 8 SC 8.4.5 P5 L 44 # 7  
 Hal Keen None entered  
 Comment Type ER Comment Status A  
 typo  
 SuggestedRemedy  
 Change "SAI" to "AAI".  
 Response Response Status C  
 ACCEPT.

Cl 8 SC 8.4.6 P6 L 12 # 43  
 Brian Weis None entered  
 Comment Type E Comment Status A  
 Typo (only usage of Y-bit)  
 SuggestedRemedy  
 Replace "Y-bit" with "Y bit"  
 Response Response Status C  
 ACCEPT.

Cl 8 SC 8.4.6 P6 L 30 # 6  
 Rodney Cummings None entered  
 Comment Type E Comment Status A  
 Typo  
 SuggestedRemedy  
 Replace "administrate" with "administrator".  
 Response Response Status C  
 ACCEPT.

Cl 9 SC 9 P7 L 3 # 25  
 Norm Finn None entered  
 Comment Type T Comment Status R  
 Please add a new subclause to 9 for the use of "OUI" to create code point, as opposed to protocol identifiers, e.g., in IEEE Std 802.1AB LLDP TLVs.  
 SuggestedRemedy  
 See Comment.  
 Response Response Status C  
 REJECT.  
 Out of scope.

Cl 9 SC 9 P7 L 3 # 24  
 Norm Finn None entered  
 Comment Type T Comment Status R  
 To answer implied question in Editor's note, I think that the suggested text should be added. The two NOTES on page 23 of the base standard 802-2014 illustrate why this is important. Many standards inside and outside 802.1 use an "OUI" to create various code points and protocol identifiers. The G/L usage introduced by P802c amplifies the ambiguity of such usage, making the additional text relevant, needful, and within the scope of the amendmen  
 SuggestedRemedy  
 Replace Editor's note with text.  
 Response Response Status C  
 REJECT.  
 Considered to be out of scope.

Cl **9** SC **9** P **7** L **3** #

Mick Seaman

None entered

Comment Type **TR** Comment Status **A**

Agree fiddling with protocol identifiers is out of the scope of the project.

SuggestedRemedy

Remove editors note and clause 9 changes from this amendment.

Response Response Status **C**

ACCEPT.

Cl **1&2** SC **1&2** P **1** L **44** #

Roger Marks

None entered

Comment Type **E** Comment Status **A**

Since Subclauses 1 and 2 are included in the amendment as useful placeholders. However, since they are currently without content, some readers might mistakenly believe that the intent is to delete the content of those subclauses from the base standard.

SuggestedRemedy

Add editor's notes to subclauses 1 and 2 indicating that no changes are made.

Response Response Status **C**

ACCEPT IN PRINCIPLE.  
Move Clause 1 note to Editor's Preamble.

Cl **E** SC **E.3** P **7** L **34** #

Norm Finn

None entered

Comment Type **TR** Comment Status **A**

Either supply text or remove editor's note.

SuggestedRemedy

See Comment

Response Response Status **C**

ACCEPT IN PRINCIPLE.  
Leave note as a placeholder to stimulate text during ballot.