

ouiUsageEmail.txt

From: David V James [dvj@alum.mit.edu]
Sent: Tuesday, May 25, 2004 11:23 AM
To: Geoff Thompson
Cc: Bob Davis; David B. Gustavson
Subject: OUI usage requirements (preliminary adhoc discussions)

Geoff,

At the last IEEE/RAC meeting, I believe you agreed to work offline on strategies for the use of OUIs formats, including context sensitive OUIs.

The planned week for discussions did not work with your schedule, so the rest of the MSC representation started without your presence, with the plan of a rendezvous after we had produced the first pass draft.

The first pass draft has been completed and is appended. Please review and provide suggestions for refinements.

Minor comments can probably be resolved through email; major comments may require a teleconference. If a teleconference seems appropriate, please provide suggested dates and times, so that we can accomodate your schedule.

Respectfully,
DVJ

Adhoc IEEE/RAC/MSC strategy meeting
OUI usage policy statement

Action plan:

Generated by:
David Gustavson
David James
Bob Davis
Prereview planned with:
Geoff Thompson
Review and signoff planned for:
IEEE/RAC

Problem:

- a) OUIs are used in a wide range of orderings and length, most of which are poorly and/or inconsistently documented.
- b) The use of context-dependent OUI-based identifiers could generate problems, since administration authorities often lack the knowledge or talent to administer distinct application dependent unique-number assignment lists.

Solution:

- 1) All new applications of the OUI within IEEE standards shall use the EUI-48 or EUI-64; use of other OUI-based unique identifier lengths is explicitly disallowed.
- 2) Within new applications, only low volume applications (such as software interface IDs) may use the EUI-48. However, even in such applications, the use of EUI-64 based identifiers is preferred.
- 3) The owner of Organizationally Unique Identifiers must assure the global uniqueness of EUI-48/EUI-64 numbers derived from their OUI. Such identifiers may be used for multiple purposes, some of which are listed below:
 - a) Software identifiers. The identifier uniquely identifies the software instance associated with a hardware device.

- b) Format identifiers. The identifier uniquely identifies the format and/or function of network frames.
- c) Entity identifiers that are required to transparently bridge to existing 48-bit MAC address based networks. This identifier uniquely identifies a hardware interface, such as a network interface card.
- d) Entity identifiers (not required to transparently bridge to existing 48-bit MAC address based networks). This identifier uniquely identifies a device, such as a current IEEE 1394 node or a future memory, refrigerator, video controller, power supply, etc.

Note that the same identifier must not be used for more than one purpose. As examples, the same identifier must not be used for (a) and (b), or for (b) and (c). The intent of this restriction is to reduce possible errors introduced by the complexities of managing multiple context-dependent address spaces within each organization.

The EUI-64 identifier format must be used for (e); the EUI-48 identifier is required for (c), due to legacy compatibility constraints. Either the EUI-48 or EUI-64 may be used for (a)-to-(b), although the use of the EUI-64 is preferred.

4) The majority of the EUI values within an assigned OUI must be utilized before another OUI identifier will be assigned to the same organization.

5) All existing applications shall clearly specify a mapping of the OUI value (expressed as hexadecimal digits) to the applicable register or bit-string value.

- a) If another portion of the document is cross-referenced, to define this mapping, a specific document and page number shall be cross referenced. Generic cross-references (Clause 12.3, when the collection of amendments is integrated together) are specifically disallowed.

- b) To avoid changes in existing standards, the working group has the option of providing tutorials, which are posted on the IEEE/RAC web site.

- c) If a standard, including related original portions of an amended standard does not conform with documentation policies of (a) or (b), the IEEE/RAC will recommend the standard not be approved.

6) What about the common use of compact unique EUI-32 values, or EUI-like values that specify partitioning of the extended identifier bits? Two options are possible:

- a) Deprecated. This was done in the past, but will not be done in the future.

- b) EUI-32 numbers are defined to be unique within each sponsor. The Sponsor's must conserve number assignments so that they are consumed in preponderance before another OUI is assigned.

The MSC representation recommends option (a) the above:

7) A modification of the EUI schema exists as the WWN (World Wide Name) identifier, used in INCITS protocols for SCSI, iSCSI, SATA, ADAPTI, Fibre Channel, SAS, etc. The WWN uses a 4-bit NAA (name administration authority) field and a 60-bit OUI based identifier.

To avoid confusion between EUI-64 and WWN values, OUI values of the form 5X-XX-XX will not be assigned by the IEEE/RAC.

8) The assignment of OUI-based identifiers is designed to allow extended EUI-32 and EUI-48 identifiers to be encoded as unique 48-bit values. Thus:

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if the EUI-32 of AB-CD-EF-12 is assigned by the Sponsor,
then the EUI-48 of AB-CD-EF-12-FF-FF must not be assigned.

9) The assignment of OUI-based identifiers is designed to allow
EUI-48 and EUI-64 identifiers to be encoded as unique 64-bit
values. As per the existing tutorial:

if the EUI-48 of AB-CD-EF-12-34-56 is assigned,
then the EUI-64 of AB-CD-EF-FF-FE-12-34-56 must not be assigned.

10) The rules of (7), (8) and (9) allows any combinations of
EUI-32, EUI-48, EUI-64, and WVN identifiers to be encoded and
transported as unique 64-bit numbers.

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