

To: Fibre Channel reflector X3T10/96-276R0
 SCSI reflector
 Serial Solutions reflector
 SFF reflector

From: Bob Snively

Subject: Meeting with IEEE Registration Authority Committee
 about FC and SCSI usage of OUI.

Date: October 23, 1996

EXECUTIVE SUMMARY:

Glossary:

OUI = Organizationally Unique Identifier (knew you had to ask)
 RAC = Registration Authority Committee
 FAQ = [Answers to] Frequently Asked Questions
 EUI-64 = A 64-bit world-wide unique number based on the OUI
 FC = Fibre Channel (X3T11)
 SCSI = Small Computer Systems Interface (X3T10)

- 1) After careful consideration, the IEEE RAC has embraced the use of the OUI/Company Identifier for Fibre Channel and SCSI activities. Most of X3T11's objections to the use of the IEEE identifier have long since been resolved. The identifier is easy to buy and use. Bob Snively has inherited the action item of preparing a properly defined tutorial for the Fibre Channel and SCSI use of the OUI.
- 2) Since FC-PH uses the formats already defined, plus the two that Bob Snively will define, it is likely that FC attached SCSI devices will use the same FC-PH identifier format for the SCSI identifier. These will be clearly shown in the tutorial document.

Since P1212 recommends the use of the EUI-64 formats, it is possible that IEEE 1394 attached SCSI devices will use the EUI-64 for the SCSI identifier.

- 3) IEEE has picked up the action item of improving their web site's presentation of the registration FAQ and registration procedure, so that it will include all the information and tutorials necessary to properly use an IEEE OUI/Company Identifier.
- 4) FYI: OUI and Company Identifier are two different representations for the same registration number, one best suited for and most familiar to LAN users, the other best suited for and most familiar to I/O users. This is no big deal, but is part of the clarification that will be provided by IEEE in its web pages. The 24-bit number costs \$1000 and can be obtained through a registration procedure on the web.

ACTION ITEMS:

- 1) Bob Snively to prepare FC and SCSI tutorials. These tutorials will be circulated among knowledgeable tutorial writers for review before being distributed to the FC and SCSI committee. Some additional FC proposals may come from this work.

- 2) IEEE staff to clarify the web site's information about registration.
- 3) IEEE staff to place tutorials and public assignment information on web site.

AGENDA:

On October 23, 1996, I met with the IEEE Registration Authority Committee (RAC). The agenda of this meeting included:

- 1) Application of OUI to 64-bit addressing schemes, aka EUI-64
- 2) Application of OUI to Fibre Channel technology
- 3) Application of OUI to SMPTE 298M
- 4) IEEE in ISO tree
- 5) Transfer of field-type registration from Xerox to IEEE.
- 6) Administrative issues

Organization
List of OUI's available on web
Application revision
Usage policies

DETAILED REVIEW OF CRITICAL AGENDA ITEMS:

- 1) Application of OUI to 64-bit bit addressing schemes, aka EUI-64.

The EUI-64 is a unique number, derived from the OUI. It was created for identifiers like those specified by IEEE 1212 CSR, IEEE 1394, and IEEE 1394.2. SCSI is also allowed to use this identifier. Dallas Semiconductor has a product called the DS 2502, which provides 1 K bits of "add-only" serially accessed memory. A version of this product can be purchased with unique EUI-64 values for use by any product that needs a unique identifier. Each individual piece is identified by a completely unique Dallas Semi registration number as well as the EUI-64 number. DS 2502's can also be purchased with other number initializations and sequences as required, including FC world-wide name values (although parts having those patterns have not yet been developed). Costs are reasonable.

IEEE is satisfied that Dallas Semiconductor is capable of guaranteeing uniqueness in each particular component. IEEE is satisfied with the indemnification paragraphs agreed to for this type of activity.

It was suggested that any new companies producing controlled numbers derived from IEEE OUIs for sale to other companies would have to go through the same qualification and meet the same requirements that Dallas Semiconductor has completed.

- 2) Application of OUI to Fibre Channel and SCSI technology.

The use of OUI's in a manner similar to that documented by Bob Snively (enclosed) to identify FC ports and nodes and to identify SCSI and other peripheral devices is accepted in

principle by the RAC.

Bob Snively shall create a tutorial that documents this usage in the traditional tutorial manner. He will arrange to have it reviewed by experienced tutorial writers and publish it for fibre channel and SCSI usage.

IEEE had been concerned that the Naming Authority Address (NAA) values specified by FC would become a part of the IEEE registration responsibility. Bob Snively indicated that these values were the sole responsibility of X3T11. Similarly the type indicators in SCSI are the sole responsibility of X3T10.

It was noted that the OUI is actually a 24 bit value with two bits reserved for unique ethernet usage. For all non-ethernet usage, these bits are reserved and shall be zero.

Note all the other problems associated with this method of registering identifiers appear to have been corrected by IEEE in the last few years.

3) Application of OUI to SMPTE 298M

This is not particularly relevant to the present discussion. Basically, SMPTE wants to place the OUI correctly in the ISO identification tree.

4) Transfer of field-type registration from Xerox to IEEE

This is not relevant to the present discussion. It is an ethernet registration item.

5) Administrative issues

VME-64 apparently uses OUI. A tutorial is required.

An electronic copy of all those companies that have not requested confidentiality is available to cross reference to their OUIs. The original confidentiality requirement was associated with IEEE 48-bit LAN addresses, where the number of devices actually identified was potentially trade-secret marketing information. Very few companies still insist on this marketing confidentiality, since the number space is so huge. Those that still insist on this will not be on the electronic listing. It has been proposed that this list be made available on the web.

The uses of the OUI are not policed. However, it is considered essential that there be no duplication of any identifier. A company's OUI is to be used for all identification purposes within the company, including 48-bit LAN, EUI-64 identifiers, and FC-PH identifiers. Note that the format may create similar bit patterns in registers or on links, but the value interpreted according to the tutorial will always be unique. As a matter of policy, it is desirable to use up the identification spaces completely. The company is responsible for registering the usage of the vendor specific numbers.

Historically, there have been few foulups and IEEE has worked with the affected companies to straighten those out. Most invalid usage has been inadvertent.

The web site has some clarity issues which are being addressed

by IEEE. The reference is rather obscurely accessed through:

<http://www.ieee.org> -> "Standards"
<http://stdsbbs.ieee.org> -> "IEEE Standards FAQs"
<http://stdsbbs.ieee.org/faqs/index.html> -> "OUIs"

to:

<http://stdsbbs.ieee.org/faqs/OUI.html>

ATTENDANCE: (spelling may not be correct for some people, my apologies.
 relevant functions may not be correct for some people, again
 my apologies.)

Gary Robinson	Chair of IEEE RAC	Sun Microsystems, IEEE
Mike Wenzel	HP	
Jim Carlo	Chair of 802 LANS	TI
Bob Lynch	Chair of ANSI RAC	DEC
John Adams	EUI-64 products	Dallas Semi
Bernhardt Linke	EUI-64 products	Dallas Semi
Charlie Hohenshelt	EUI-64 consultant	RSVP
David James	1394/1212 expert	Apple
Bob Snively	FC/SCSI	Sun Microsystems
Karen Rupp	IEEE	
Andy Salem	Managing Director	IEEE
Jerry Walker	Mgr, RAC function	IEEE
Linda Gargiulo	IEEE	
Anita Ricketts	IEEE	
Judy Gorman	IEEE	
Mick Sieman	802 expert	

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* For SCSI Reflector information, send a message with

* 'info scsi' (no quotes) in the message body to majordomo@symbios.com