

IEEE Registration Authority

OUI Registry Tiers proposal



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RAC Members

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Current OUI based identifiers

- Company_id is a 24-bit OUI value assigned by the IEEE-RA
- CDI-32™ is a concatenation of a 24-bit OUI value assigned by the IEEE-RA and an 8-bit extension identifier assigned by the organization with that OUI assignment.
- TCDI-40™ is a concatenation of a 24-bit OUI value assigned by the IEEE-RA and a 16-bit extension identifier assigned by the organization with that OUI assignment.
- MAC-48 (obsolete label) / EUI-48™ is a concatenation of a 24-bit OUI value assigned by the IEEE-RA and a 24-bit extension identifier assigned by the organization with that OUI assignment.
- EUI-60 (deprecated) is a concatenation of a 24-bit OUI assigned by the IEEE-RA and a 36-bit extension identifier assigned by the organization with that OUI assignment.
- EUI-64™ is a concatenation of the 24-bit or 36-bit OUI value assigned by the IEEE-RA and a 40-bit or 28-bit extension identifier assigned by the organization with that OUI assignment.
- IPv6 is a concatenation of a 64-bit EUI-64™ (derived from a MAC-48/EUI-48™) and a 64-bit extension identifier assigned by the device with the MAC-48/EUI-48™ assignment.

Current creation

<u>Identifier</u>	<u>registry</u>	<u>OUI:ID</u>
• Company_id	OUI	1:1
• CDI-32	OUI	
• TCDI-40	OUI, OUI36	
• MAC48/EUI48	OUI, IAB, OUI36	1:16M
• EUI60	OUI	
• EUI64	OUI, OUI36	1:1T
• IPv6	OUI, IAB, OUI36	

Some identifiers can only be created from one registry in the OUI number space

Market usage

- The RAC has no data on which “OUI based identifier” a customer intends to create
 - Without this, we are only guessing on the best reorganization
 - But the assumption is the bulk of usage is to create MAC48
 - A “prime directive” of the RAC is to not run out of global MAC48 addresses for 100 years

- Volume data from RAC report is:

<u>Registry</u>	<u>2010</u>	<u>all time</u>
OUI	1248	15,004
IAB12	461	3,622
OUI36	12	58

~250 billion MAC48 (of ~70 trillion possible) addresses have been assigned – but are they all used?

A clearer tiering would reduce “lost” or “unused” MAC48 addresses

RAC Proposal

- Maintain existing registries
 - Close IAB12 when full
 - Add new registry for OUI as company_ID
 - Add additional tiers for more granular and usage appropriate MAC48 & EUI64 usage
 - Include ability to sell bookends for single address and volume MAC48 needs
- Pro
 - Retains current registries
 - Adds company_id separation for small company usage
 - Opportunity to simplify and rationalize IABx/OUI48-x to be same registry
 - Design registries to fit usage. Besides the existing and the bookends, no obvious technical reason for selection of others
 - Con
 - Separate company_id registry (that cannot be used to create addresses) may be confusing
 - Closing IAB12 may cause confusion
 - A lot of granularity

Proposed OUI -based Registries

- OUI *existing*
- Company-ID
- OUI48
- OUI42 ?
- OUI36 *existing*
- OUI30 ?
- OUI24
 - Cannot be used as company_ID
- IAB12 *existing*
 - close when full

Registry	MAC48	EUI64
OUI48	1	65536
OUI42	64	4194304
OUI36	4096	268435456 ~270 million
OUI30	262144	17179869184 ~17 billion
OUI24 / OUI	16777216 ~16 million	1099511627776 ~1 trillion

Process

- RAC & RAP (sub-groups of the IEEE-SA BOG) working together to develop reorganization of the OUI set of registries
 - Use of consultant for some work items
- Registry structure proposal will be socialized with customers and WGs seeking feedback on impact
- Market evaluation per identifier
- Evaluate feedback and finalize proposal
- BOG would like to approve organization and pricing in Dec 2011

Your input is requested