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Naming IPv6 address parts
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Abstract

In the daily communication between technicians, engineers and other people who need to deal with computer networks, it is often necessary to refer to particular parts of IP addresses. In the world of IPv4, the term "octet" is well established, however as the use of IPv6 is spreading, it becomes apparent that there is no such commonly accepted term for IPv6 addresses.

Discussing and explaining technical matters become difficult when different people use different terms for the same thing. Therefore, this document discusses several naming proposal for those 16bit pieces of IPv6 addresses.

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[1. Introduction](#)

Verbal and written communication requires a common set of terms, easily understood by every potential party. While deploying IPv6, when referring to segments of IPv6 addresses, confusion regularly arises due to the usage of different and sometimes conflicting nomenclature for the same pieces of information.

[IPV6Addr] is the normative reference to IPv6 addressing and avoids to coin a special term for the subject of this document itself:

The preferred form is x:x:x:x:x:x:x:x, where the 'x's are one to four hexadecimal digits of the eight 16-bit pieces of the address.

[IPV6Rep] is the normative reference to IPv6 address text representation and introduces the term "16-bit field" or short "field".

2. Rationale

While we readily agree that the naming of IPv6 address parts is not the most pressing concern the Internet is facing today, a common nomenclature is important for efficient communication.

In IPv6 deployments the delimiting colons are regularly used to facilitate the separation of labels discerning not only administrative boundaries but also network segments and distinct infrastructure components. Consequently the values between the colons are frequently referred to especially in communication regarding coordinative matters.

Time spent explaining what one is referring to is wasted and conflicting names can lead to misunderstanding while the usage of a common term helps facilitating quick understanding.

To solve this problem, the specification of a precise and recognizable term is advised.

A typical ambiguity occurs in [[IPv6Rep](#)] which uses the term "field" or "16-bit field" for the term in question. This case is interesting because there was a short IETF WG discussion which term should be used.

If an IPv6 address field in a certificate was incorrectly verified by converting it to text ...

Since parts of the internet community only accept authoritative advice substantiated by a published document, also known as the 'citation needed' approach, it is helpful to have a definite source.

3. Naming Considerations

Any term that can be confused with other technical terms due to phonetic similarities can lead to misconfiguration causing reachability and security risks to the involved parties. Even with English being the preferred language in the IT world today, a good name should describe the technical matter precisely while being easy to remember, spell and pronounce in as many languages as possible.

4. Naming Proposals

4.1. hextet

"hexadectet" is directly derived from IPv4's "octet", thus technically correct and convenient to get used to. Because it is harder to pronounce, the short form "hextet" is used.

"hextet" MUST be used in all technical documents and specifications referring to IPv6 address parts.

4.2. quibble

A nibble is a 4bit entity, hence 16 bits are a quad nibble. This is a rather bulky word, however, so "quibble" is a convenient abbreviation. It is a unique term in networking but has an existing meaning in ordinary English.

"quibble" MAY be used for informal communication.

5. Security Considerations

This memo does not directly discuss security issues, however the lack of a common, well established term could theoretically lead to misinterpretation, possible leading to insecure configuration of computer systems.

6. IANA Considerations

No assignments by the IANA are required. However it is considered desirable that the IANA adopts the term in future documents.

7. References

7.1. Normative References

[IPV6Addr] Deering, S. and R. Hinden, "IP Version 6 Addressing Architecture", [RFC 4291](#), February 2006

[IPV6Rep] Kawamura, S. and Kawashima, M., "A Recommendation for IPv6 Address Text Representation", [RFC 5952](#), August 2010

[Q.6] ITU-T, "Advantages of international automatic working", Fascicle VI.1 of the Blue Book, 1988

[RFC2119] S. Bradner, Key words for use in RFCs to Indicate Requirement Levels

7.2. Informal References

[greg] <http://etherealmind.com/network-dictionary-chazwazza/>,
Sept 5, 2010

8. Acknowledgements

Thanks go to Greg Ferro who initiated the discussion by proposing the term "chazwazza".[[greg](#)]

Many thanks to all those people which contribute to our work and participate in the straw poll about all the other propoals, which are described in former versions of this memo: Chazwazza, Chunk, Column, Colonade, Colonnade, Doctet, Field, Hexadectet, Hit, Orone, Part, Provider number, customer number, network number, Quad nibble, qibble, Segment, Tuple, and Word.

The inital version of this document was created following the spirit of [[Q.6](#)].

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[Appendix A](#). Change History

- 00 - initial version

- 01 - Jens Link moved from Author to Supporter
 - Leon Weber moved from Supporter to Author
 - numerous typographic fixes
 - added "field" from [[IPv6Rep](#)] as proposal and as reason
 - added "part" for completeness
 - dismissed "hextet / hexatet / sixlet"
 - created sub sections for each proposal
 - added update notification of [RFC4291](#) and [RFC5952](#)
 - added a "Security considerations" [section](#)

- [02](#) - Fixing nits
 - Propose a selection mechanism

- 03 - Added Hextet
 - Removed references to DENOG
 - Select two proposals based of the straw poll and the WG

- 04 - Upgraded hextet to MUST
 - Corrected formalia & typos
 - lower-cased hextet and quibble as that is consensus for octet
 - Formatting
 - Fixed nits introduced by -03

