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Domain Suffix Option for DHCPv6
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Abstract

This document describes a new option for DHCPv6 (DHCP for IPv6) that provides a mechanism for specifying a domain name suffix.

1. Introduction

This document describes a new option for DHCPv6 [[RFC3315](#)] that provides a mechanism for specifying a domain name suffix. Using this option, the DHCPv6 server can specify a domain name suffix to the DHCPv6 client.

1.1 Terminology

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are to be interpreted as described in [[RFC2119](#)].

Domain suffix

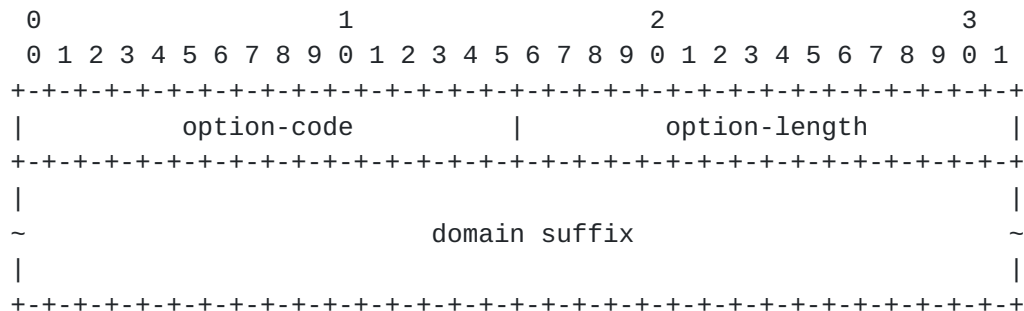
In this document, the domain suffix is defined as the suffix of a fully qualified domain name (FQDN). It starts with lower-level domain name and continues all the way up to the top-level domain name.

This document should be read in conjunction with the DHCPv6 specification, [[RFC3315](#)]. Definitions for terms and acronyms used in this document are defined in [RFC3315](#).

2. Domain Suffix Option

The domain suffix option for DHCPv6 is used by the DHCPv6 server to tell the DHCPv6 client the domain suffix that the DHCPv6 server administrator has specified for that DHCPv6 client.

The format of the domain suffix option is:



option-code: OPTION_DOMAIN_SUFFIX (TBD).

option-length: length of the "domain suffix" field in octets.

domain suffix: the specification of a domain suffix.

The domain suffix in the 'domain suffix' field MUST be encoded as specified in section of [RFC3315](#) titled "Representation and use of domain names", except that it SHOULD only include one domain name, being a series of labels terminated by exactly one root label.

If more than one root label is present, the DHCP client implementations MUST select the first name, ignoring any subsequent labels.

[2.1](#) Usage

A DHCPv6 client MUST include the option code in Option Request Option [[RFC3315](#)] if it desires the domain suffix option, and the DHCPv6 server SHOULD include this option in an Advertise or Reply if requested by the client in the Option Request Option.

A DHCPv6 server may provide different values for the domain suffix option to different clients. The mechanism for choosing which suffix to assign to which client is a matter of implementation and administrative policy, and is therefore not specified in this document.

[3](#). Security Considerations

Security considerations in DHCP are described in [section 23](#), "Security Considerations" of [RFC3315](#).

[4](#). IANA Considerations

IANA is requested to assign a DHCPv6 option code for the OPTION_DOMAIN_SUFFIX.

[5](#). Acknowledgements

The authors thank Ralph Droms, Ted Lemon, Stig Venaas, Bernie Volz, Tatuya Jinmei, Joe Quanaaim and Stefaan De Cnodder for valuable discussions and comments.

[6](#). References

[6.1](#) Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.

- [RFC3315] Bound, J., Carney, M., Perkins, C., Lemon, T., Volz, B. and R. Droms (ed.), "Dynamic Host Configuration Protocol for IPv6 (DHCPv6)", [RFC 3315](#), May 2003.
- [RFC3633] O. Troan, R. Droms, "IPv6 prefix option for DHCPv6", [RFC3633](#), December 2003.

Appendix: Examples

The examples defined below are intended to give a reference usage of the domain suffix option.

Example 1: Used for host

One obvious example for the option is in a case where a DHCP client is not configured to assert a particular domain. The client could request the domain suffix in the ORO option to request the domain name it could use, as the usage for option 15 in DHCPv4.

Example 2: Used for IPv6 residential gateway

In IPv6 home network, it is easy to imagine that each device can get a globally unique IPv6 address, so that the device could be visited from outside network easily. It will be better if these devices could be accessed using domain name other than the tedious IPv6 address.

Usually, residential gateway in home network works as a prefix requesting router [[RFC3633](#)] to request IPv6 prefix from prefix delegation router and allocate the address to home device using stateless configuration or through an embedded DHCPv6 server. One method to configure the domain suffix in CPEs in large scale is using domain suffix option.

During DHCP session initiated by residential gateway, domain suffix name (e.g. example.com) could be specified.

The domain suffix can then be used to update domain name for the hosts in subscriber network, by an embedded DHCPv6 server in residential gateway or by other means of DNS update mechanism for stateless IPv6 configuration.

To avoid frequent domain name conflicts, aggregation device might allocate different domain suffix name for the CPE. An example way can be selection based on an external authority such as a RADIUS server, in which an unique domain suffix name prefix, called "home name", are negotiated between user and ISP when subscribing. For example, "user1.example.com" and "user2.example.com".

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