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J. Huang
AT&T Labs

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IPv6CP Options for PPP Host Configuration
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Abstract

The Softwire Hub and Spoke Framework document outlines three steps for the Softwire Initiator (SI) and PPP peer of the Softwire Concentrator (SC) over IPv4 connectivity to be fully configured for IPv6 once the PPP session has been established. For the same function over IPv6 connectivity, however, only one additional step is needed. This is because IPv6CP only defines the Interface-Identifier option. This document defines additional host configuration options for IPv6CP so that the operational model of IPCP is extended to IPv6CP to reduce requirements on the SI and SC.

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Table of Contents

1. Introduction 3
1.1. Requirements Language 3
2. IPv6CP Configuration Options 3
2.1. Prefix 3
2.2. Prefix-Length 4
2.3. IPv6-Address 5
2.4. Default-Gateway-Address 6
2.5. Primary-DNS-Address 7
2.6. Secondary-DNS-Address 7
2.7. Delegated-Prefix 8
2.8. Delegated-Prefix-Length 9
3. Security Considerations 10
4. IANA Considerations 10
5. Acknowledgements 10
6. Normative References 10
Author's Address 10

1. Introduction

The Softwire Hub and Spoke framework document [RFC5571] outlines three steps for the Softwire Initiator (SI) and PPP peer of the Softwire Concentrator (SC) over IPv4 connectivity to be fully configured for IPv6 once the PPP session has been established. For the same function over IPv6 connectivity, however, only one additional step is needed. This is because IPv6CP [RFC5072] only defines the Interface-Identifier option. This document defines additional host configuration options for IPv6CP so that the operational model of IPCP is extended to IPv6CP to reduce requirements on the SI and SC.

Other use cases where IPv6CP can completely configure the PPP endpoint is the traditional VPN concentrator space, where the concentrator assigns all IP configuration parameters to the VPN client for IPv4.

1.1. Requirements Language

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 RFC 2119 [RFC2119].

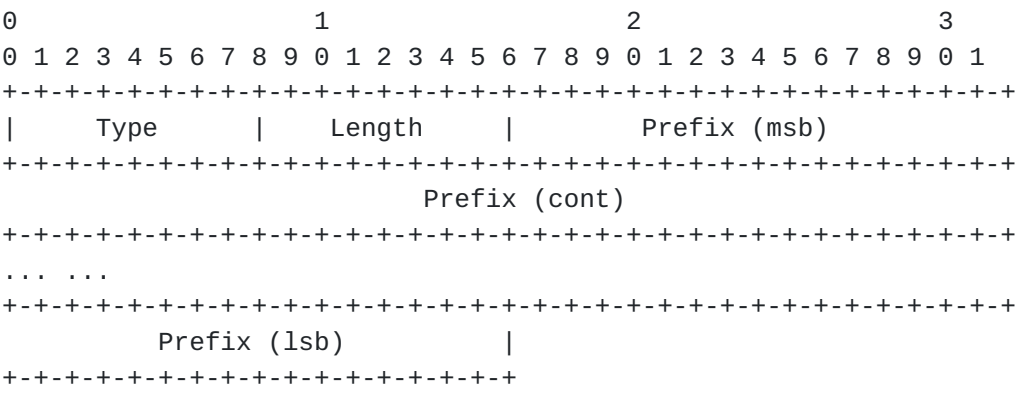
2. IPv6CP Configuration Options

IPv6CP [RFC5072]defines the Interface-Identifier configuration option. Successful negotiation of the Interface-Identifier allows further configuration parameters via Stateless Autoconfiguration.

The following IPv6CP options are defined in this document. Up-to-date values of the IPv6CP Option Type field are specified in the online database of "Assigned Numbers" maintained by IANA.

2.1. Prefix

This option and Prefix-Length provide the IPv6 prefix information to the device.



Type

2

Length

18

Prefix

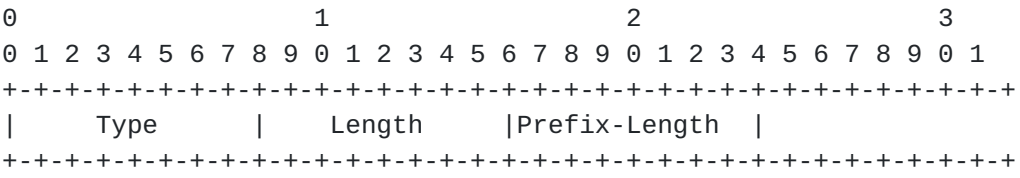
The IPv6 prefix that should be used on the link to construct the globally unique IPv6 address.

Default

None

2.2. Prefix-Length

This option and Prefix provide the IPv6 prefix information to the device.



Type

3

Length

3

Prefix-Length

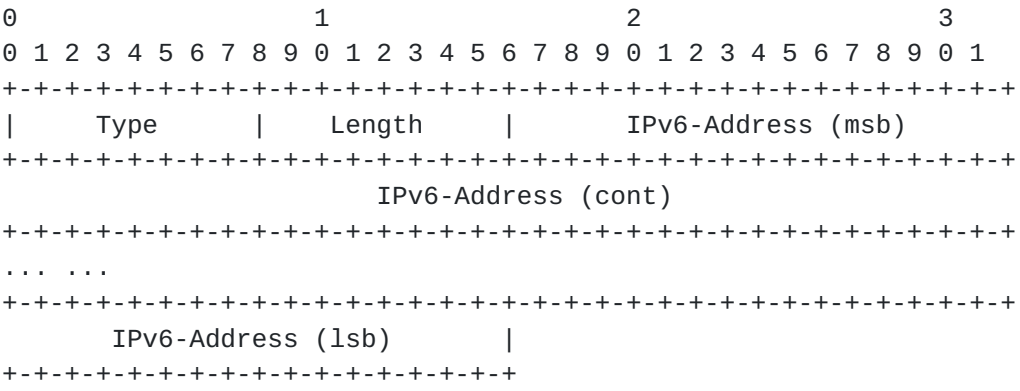
The length of the IPv6 prefix that should be used on the link to construct the globally unique IPv6 address.

Default

None

2.3. IPv6-Address

This option provides the IPv6 address to be configured on the PPP peer for the PPP link. This is an alternative for the IPv6 address assignment/generation process where the gateway/SC completely controls the configuration of the PPP peer.



Type

4

Length

18

IPv6-Address

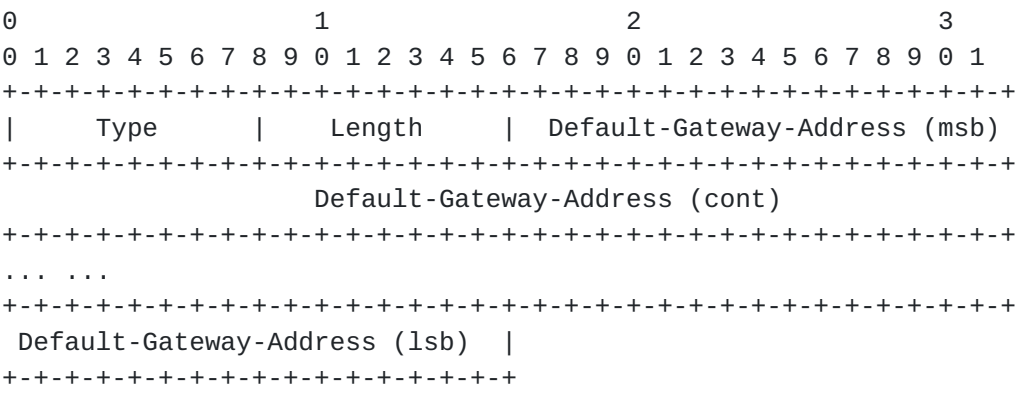
The IPv6 address assigned to the PPP peer to use on this link.

Default

None

2.4. Default-Gateway-Address

This option provides the IPv6 address of the default gateway on the link.



Type

5

Length

18

Default-Gateway-Address

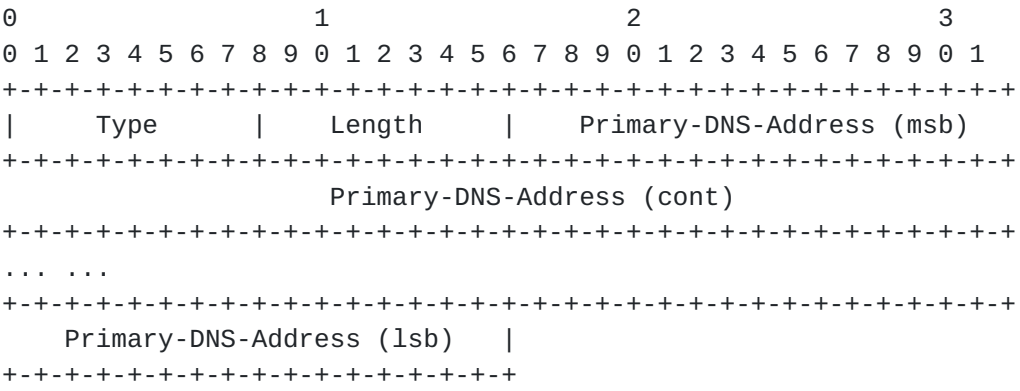
The IPv6 address of the default gateway on this link.

Default

None

2.5. Primary-DNS-Address

This option provides the IPv6 address of the primary DNS server that should be configured on the PPP peer.



Type

6

Length

18

Primary-DNS-Address

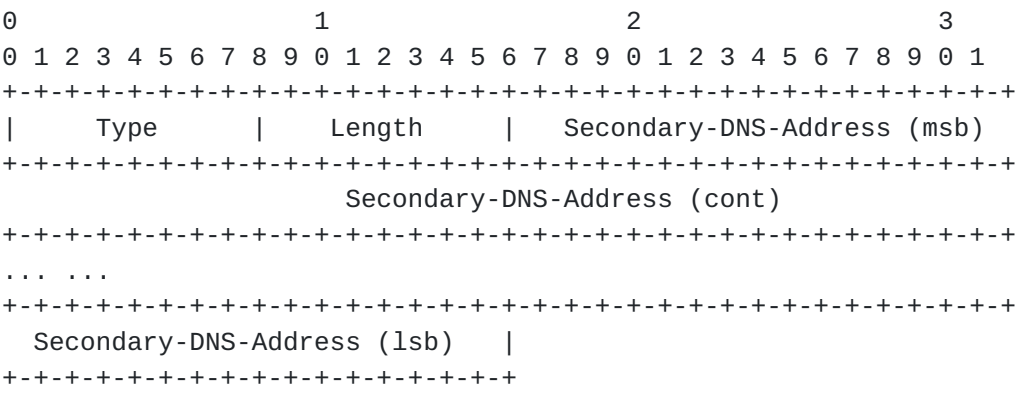
The IPv6 address of the primary DNS server.

Default

None

2.6. Secondary-DNS-Address

This option provides the IPv6 address of the secondary DNS server that should be configured on the PPP peer.



Type

7

Length

18

Secondary-DNS-Address

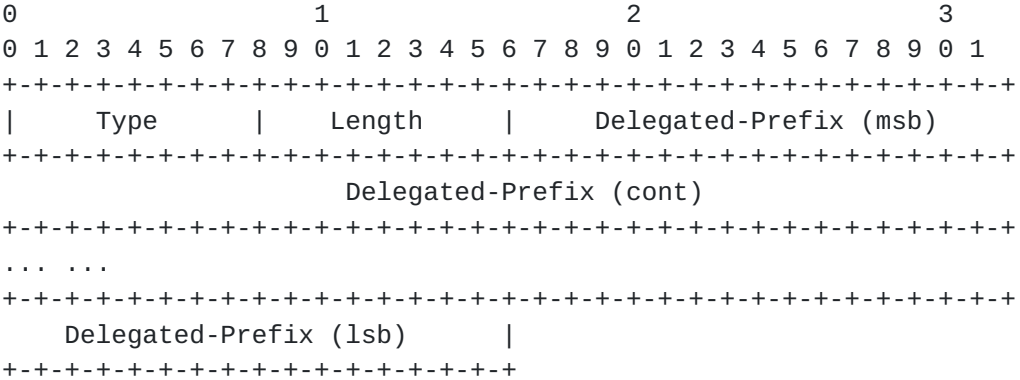
The IPv6 address of the secondary DNS server.

Default

None

2.7. Delegated-Prefix

This option and Delegated-Prefix-Length provide information on the IPv6 prefix delegated to the device.



Type

8

Length

18

Delegated-Prefix

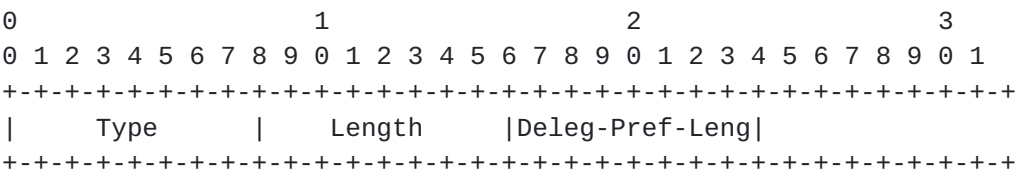
The IPv6 prefix delegated by the gateway/SC to the device.

Default

None

2.8. Delegated-Prefix-Length

This option and Delegated-Prefix provide the information on the IPv6 prefix delegated by the gateway/SC to the device.



Type

9

Length

3

Delegated-Prefix-Length

The length of the IPv6 prefix delegated by the gateway/SC to the device

Default

None

3. Security Considerations

No new security concerns raise out of this document.

4. IANA Considerations

IANA is requested to assign values 2 through 9 for the Type field for the IPv6CP configuration options specified in this document.

5. Acknowledgements

Placeholder

6. Normative References

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

[RFC5072] S.Varada, Haskins, D., and E. Allen, "IP Version 6 over PPP", RFC 5072, September 2007.

[RFC5571] Storer, B., Pignataro, C., Dos Santos, M., Stevant, B., Toutain, L., and J. Tremblay, "Softwire Hub and Spoke Deployment Framework with Layer Two Tunneling Protocol Version 2 (L2TPv2)", RFC 5571, June 2009.

Author's Address

Jerry Huang
AT&T Labs
4513 Western Avenue, Ofc 1741
Lisle, IL 60532
US

Phone: +1 630 719 4389
Email: jhuang1@att.com