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IPv6 RA Option for SIP Proxy Server  
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## Abstract

This document specifies a new optional extension to IPv6 Router Advertisement messages to advertise SIP Proxy Server (e.g., P-CSCF) addresses to IPv6 hosts.

The provisioning of the SIP Proxy Server address is crucial for the delivery of SIP-based services. Means to ensure reliable delivery of this information to connecting SIP User Agents is a must.

## 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](#)].

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Internet-Draft

RA for SIP Proxy Server

October 2012

## [1.](#) Introduction

### [1.1.](#) Needs

Access to SIP-based service offerings (e.g., telephony) relies on the provisioning of the IP address or FQDN of the outbound SIP Proxy Server [[RFC3261](#)]. Two means have been defined in the past to provision such information:

1. DHCPv6 SIP options [[RFC3319](#)].
2. Dedicated 3GPP PCO to convey the address of the P-CSCF [[CORE](#)].

Nevertheless, these means are not sufficient because of the following reasons:

1. PCO-IE is not mandatory in 3G networks (e.g., PCO information may not be supported by terminals);
2. DHCPv6 is not required in all 3GPP releases. Moreover, the support of DHCPv6 client is not mandatory in the IETF IPv6 node requirements.
3. PCO-IE is not available in non-3GPP networks. This is very critical when the UE (User Equipment) performs a network attachment in a non-3GPP network because the user won't have access to SIP-based services if no alternative means are supported.

As a conclusion, auto-configuration [[RFC4861](#)] is required so that a SIP UA (User Agent) can learn one or multiple SIP Proxy Servers.

### [1.2.](#) Scope

This document defines a new ND option called SIP Proxy Server option that contains the domain name of SIP Proxy Server(s). This option

follows the procedures defined in [RFC4861]. The IPv6 host embedding a SIP UA can learn a list of SIP Proxy Servers using this option.

This option can be sent along with other options, such as DNS information [RFC6106], in the same RA message.

The router sending the SIP Proxy Server in RA must be configured with the Proxy Server information.

## 2. SIP Proxy Server Option

The SIP Proxy Server Option contains a domain name representing the SIP outbound Proxy Server (e.g., SBE, P-CSCF). Figure 1 shows the format of the SIP Proxy Server Option.

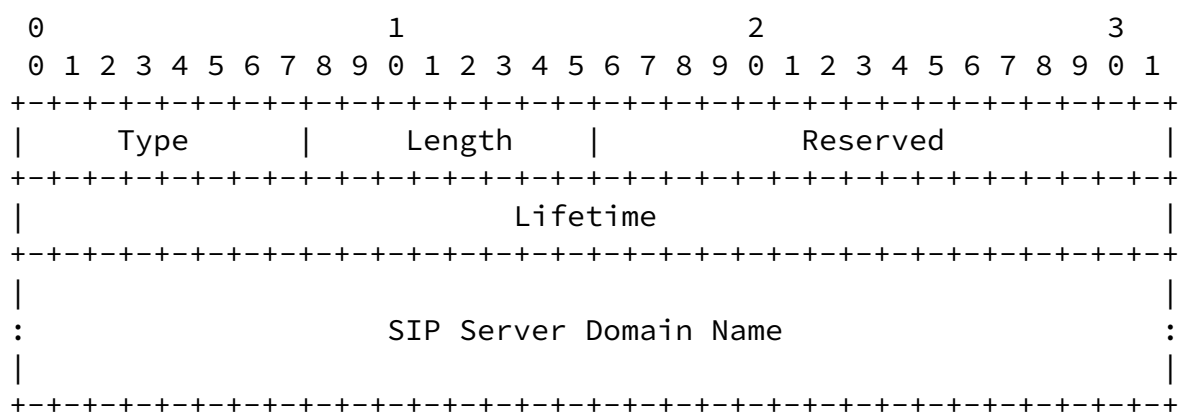


Figure 1

Where

- o Type: To be assigned (RA SIP Proxy Server Option).
- o Length is a 8-bit unsigned integer. The length of the option is in unit of 8 octets.
- o Reserved is for future use.

- o Lifetime is a 16-bit unsigned integer. Same as in [\[RFC6106\]](#).
- o SIP Server Domain Name: The domain names of the SIP outbound proxy servers for the client to use. The domain names are encoded as specified [Section 3.1 of \[RFC1035\]](#). The domain names MUST NOT be encoded in a compressed form, as described in [Section 4.1.4 of \[RFC1035\]](#).

Upon receipt of an RA SIP Proxy Server option, the IPv6 host MUST verify that the option length does not exceed 255 octets [\[RFC1035\]](#). The IPv6 host MUST verify the FQDN is properly encoded as detailed in [Section 3.1 of \[RFC1035\]](#).

Once the FQDN conveyed in a SIP Proxy Server RA option is validated, the included name is passed to the name resolution library (e.g., [Section 6.1.1 of \[RFC1123\]](#) or [\[RFC6055\]](#)) to retrieve the corresponding IP address.

### [3.](#) IANA Considerations

This document requests IANA to assign a new option code for:

SIP Proxy Server

### [4.](#) Security Considerations

The security considerations discussed in [\[RFC4861\]](#) and [\[RFC3261\]](#) must be taken into account.

This option can be used to inject a fake proxy server which will discover the security credentials used by legitimate user to connect to their SIP services. This threat is similar to what is discussed in [\[RFC6106\]](#).

### [5.](#) References

#### [5.1.](#) Normative References

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## [5.2.](#) Informative References

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- [RFC6055] Thaler, D., Klensin, J., and S. Cheshire, "IAB Thoughts on Encodings for Internationalized Domain Names", [RFC 6055](#), February 2011.
- [RFC6106] Jeong, J., Park, S., Beloeil, L., and S. Madanapalli, "IPv6 Router Advertisement Options for DNS Configuration", [RFC 6106](#), November 2010.

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