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DHCPv6 Extension for On Demand Mobility exposure  
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Abstract

Applications differ with respect to whether they need IP session continuity and/or IP address reachability. Networks providing the same type of service to any mobile host and any application running on the host yields inefficiencies. This document describes extensions to the DHCPv6 protocol to enable mobile hosts to indicate the required mobility type of the requested IP address, and networks to indicate the type of mobility service associated with the allocated IP address in return.

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## 1. Introduction

[TBD reference to the On-demand draft] defines different types of mobility-associated services provided by access networks to mobile hosts with regards to maintaining IPv6 address continuity after an event of the host moving to different locations with different points of attachments within the IP network topology. It further specifies means for applications to convey to the IP stack in the mobile host, their requirements regarding these services.

This document specifies extensions to the DHCPv6 protocol specified in [RFC3315] in the form of a new DHCP option that specifies the type of mobility services associated with an IPv6 address. The IP stack in a mobile host uses the DHCP client to specify the type of mobility service to be associated with an expected source IPv6 address. The network uses the DHCP server to convey the type of service it is committed to provide with the assigned IPv6 address using this option.

The type of service is associated by the network with the source IPv6 address assigned to the mobile host. For example, if a mobile host requests IP address continuity through out the life of the IP session and the network commits to provide that service, it will associate the service with an assigned source IPv6 address, and reply with the IPv6 address and an indication of the type of service associated with that address.

## 2. Notational Conventions

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].

## 3. IPv6 Continuity Service Option

The IPv6 Continuity Service option is used to specify the type of continuity service associated with a source IPv6 address. The IPv6 Continuity Service option must be encapsulated in the IAaddr-options field of the IA Address option.

The format of the IPv6 Continuity Service options is:

TBD - Add format description...

In a message sent from a client to a server, the value of the IPv6 Continuity Service option indicates the type of IP continuity required for the IPv6 address requested by the client.

In a message sent from a server to a client, the value of the IPv6 Continuity Service option indicates the type of IP continuity service committed by the network for the associated IPv6 address.

If a server received a request to assign an IPv6 address with a specified IPv6 Continuity service, but cannot fulfill the request, it must reply with the [TBD] status.

A server that does not support this option will discard it as well as the IA Address option that had this option encapsulated in one of its IAaddr-options field.

If a client does not receive the requested address, it must resent the request without the desired IPv6 Continuity Service option since it is not supported by the server. In that case, the host of the client cannot assume any IP continuity service behavior for that address.

A server must not include the IPv6 Continuity Service option in the IAaddr-options field of an IA Address option, if not specifically requested previously by the client to which it is sending a message.

If a client receives an IA Address option from a server with the IPv6 Continuity Service option in the IAaddr-options field, without initially requesting a specific service using this option, it must discard the received IPv6 address.

If the mobile host has no preference regarding the type of continuity service it uses the 'AnyType' value as the specified type of continuity service. The Server will allocate an IP address with some continuity service and must specify the type in IPv6 Continuity Service option encapsulated in the IAaddr-options field of the IA Address option. The method for selecting the type of continuity service is outside the scope of this specification.

#### 4. Security Considerations

There are no specific security considerations for this option.

#### 5. IANA Considerations

TBD

#### 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.
- [RFC5014] Nordmark, E., Chakrabarti, S., and J. Laganier, "IPv6 Socket API for Source Address Selection", RFC 5014, September 2007.
- [RFC6724] Thaler, D., Draves, R., Matsumoto, A., and T. Chown, "Default Address Selection for Internet Protocol Version 6 (IPv6)", RFC 6724, September 2012.

##### 6.2. Informative References

- [RFC3315] Droms, R., Bound, J., Volz, B., Lemon, T., Perkins, C., and M. Carney, "Dynamic Host Configuration Protocol for IPv6 (DHCPv6)", RFC 3315, July 2003.

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