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**Handling Unknown DHCPv6 Messages**  
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Abstract

Dynamic Host Configuration Protocol version 6 (DHCPv6) isn't specific about handling messages with unknown types. This document describes the problems and defines how a DHCPv6 function node should behave in this case.

Status of This Memo

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**[1.](#) Introduction**

Dynamic Host Configuration Protocol version 6 (DHCPv6) [[RFC3315](#)] provides a framework for conveying IPv6 configuration information to hosts on a TCP/IP network. But [RFC 3315](#) is not specific about how to deal with message with unrecognized types. This document describe the problems and defines the behavior of a DHCPv6 function node in this case.

**[2.](#) Problem Statement**

The relay agent is bound to send a message to either the server or the client. But [RFC 3315](#) doesn't specify how the relay agent can find out that it should send a message towards the server or towards the client.

Another issue is that, there is no statement in [RFC 3315](#) about the case that what a relay agent should do if it receives message types it doesn't recognize. [RFC 3315](#) doesn't require it to relay the messages, nor advise it to drop them.

In addition, there is no specific requirement of the client or server on dealing with an unknown message in [RFC 3315](#).

**[3.](#) Relay Agent Behavior Update**

A relay agent is responsible for relaying messages between the client and server. The Relay-reply message is meant for the client (downlink), while the Relay-forward message and other types of message is meant for the server (uplink). A relay agent should leverage the information to determine whether it should relay the message towards the server or the client.

### **3.1. Relaying a Message towards Server**

If the relay agent received a Relay-forward, [Section 20.1.2 of \[RFC3315\]](#) defines the related behavior. If the relay agent received messages other than Relay-forward or Relay-reply, it MUST forward them as is described in [Section 20.1.1 of \[RFC3315\]](#).

### **3.2. Relaying a Message towards Client**

If the relay agent received a Relay-reply message, it MUST unpack the message and forward it as is defined in [Section 20.2 of \[RFC3315\]](#).

## **4. Client and Server Behavior Update**

There are chances that the client or server would receive DHCPv6 messages with unknown types. In this case, the client or server MUST discard the unrecognized messages.

## **5. Security Considerations**

As the relay agent will forward all unknown types of DHCPv6 messages, a malicious attacker can interference with the relaying function by inject fake DHCPv6 messages with arbitrary type code. But this is the same problem happens in current DHCPv4 and DHCPv6 practice where the attacker has to construct the fake DHCP message with an known type code.

Clients and servers that implement this specification will discard unknown DHCPv6 messages. Since [RFC3315](#) did not specify either relay, client or server behavior in the presence of unknown messages, it is possible that some server or client that has not been updated to conform to this specification might be made vulnerable to client attacks through the relay agent.

For this reason, we recommend that relay agents, clients and servers be updated to follow this new specification. However, in most deployment scenarios, it will be much easier to attack clients directly than through a relay; furthermore, attacks using unknown message types are already possible on the local wire, yet no known vulnerabilities exist.

So in most cases, if clients are not upgraded there should be minimal additional risk; at sites where only servers and relays can be upgraded, the incremental benefit of doing so most likely exceeds any risk due to vulnerable clients.

## **6. IANA Considerations**

This document does not include an IANA request.

## **7. Contributors List**

Many thanks for Cong Liu and Yuchi Chen's contribution to the draft.

## **8. Normative 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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