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Uplink access technology indications in Router Advertisements
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Abstract

In IPv6 networks Router Advertisements can be used for providing common configuration information to nodes that are attached. There are some scenarios where it is advantageous for routers to provide their uplink access technology information to attached hosts. This document describes a neighbor discovery option that will allow the routers to do so.

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[1.](#) Introduction

In several IPv6 networks, the access technology used by routers on their uplinks is different from that used on their downlinks. There are some scenarios where it is advantageous for routers to provide their uplink access technology information to the hosts attached on the downlinks. One such example is a tethering scenario where a mobile phone that uses a cellular uplink such as LTE, shares its internet connection to hosts that connect over a local WiFi link. In this case it would be beneficial for hosts to know that the uplink connection is a cellular link and potentially modify their behavior based on their knowledge. e.g. Application and software updates (and similar bulk transfers) could be rescheduled based on administrative configuration.

This document describes an IPv6 Neighbor discovery option [[RFC4861](#)] for routers to advertise their uplink access technology(ies) in a router advertisement message.

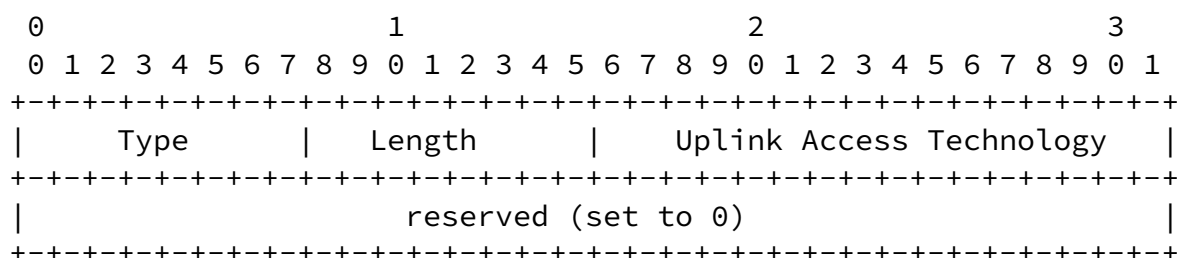
[2.](#) Terminology

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 [\[RFC2119\]](#).

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3. Uplink Access Technology option

This option is to be carried in RA messages sent out by a router on a given link. It specifies the uplink type(s) that the router uses.



Type

8-bit identifier of the type of option. The option identifier for the UAT option will be allocated by the IANA.

Length

8-bit unsigned integer. The length of the option (including the type and length fields) in units of 8 octets. It MUST be set to 1.

Uplink Access Technology

A 16-bit field that specifies the uplink access technology used by the router sending the Router Advertisement carrying this option.

Figure 1: Uplink Access Technology (UAT) Option Layout

Multiple UAT options MAY be present in a single Router Advertisement message to allow for routers that use multiple uplinks. This document defines the following initial values for the UAT field that can be extended by adding new values to the IANA registry.

UAT	Access Technology
0x01	3GPP
0x02	DSL
0x03	Cable
0x04	802.3

Figure 2

[4.](#) Router Behavior

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The value of the UAT(s) provided in this option can either be administratively configured or implicitly derived from the access technology type on the uplink interfaces.

[5.](#) Host Behavior

The value of the UAT(s) provided in this option is purely informational. It helps the hosts glean additional information about the router's uplink and perform different actions. Legacy hosts that do not recognize this option will simply ignore it.

[6.](#) Security Considerations

An attacker may attempt to modify the information provided inside this option to make hosts . These attacks can easily be prevented by using SeND [[RFC3971](#)]

[7.](#) IANA Considerations

This document defines a new IPv6 neighbor discovery option for carrying the uplink access technology type(s). IANA is requested to create a new registry for storing uplink access technology types and populate it with the following initial values.

UAT	Access Technology	Reference
0x01	3GPP	[RFC-krishnan-6man-uat-00.txt]
0x02	DSL	[RFC-krishnan-6man-uat-00.txt]
0x03	Cable	[RFC-krishnan-6man-uat-00.txt]
0x04	802.3	[RFC-krishnan-6man-uat-00.txt]

Figure 3

8. Acknowledgements

TBA.

9. Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [RFC3971] Arkko, J., Kempf, J., Zill, B., and P. Nikander, "SEcure Neighbor Discovery (SEND)", [RFC 3971](#), March 2005.
- [RFC4861] Narten, T., Nordmark, E., Simpson, W., and H. Soliman, "Neighbor Discovery for IP version 6 (IPv6)", [RFC 4861](#), September 2007.

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