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Service Identifiers Option for DHCPv6
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Service Identifiers

November 2008

Abstract

This document describes a new option for DHCPv6 [[RFC3315](#)] that provides a mechanism for specifying a list of service identifier which this connection support or don't support.

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1. Introduction

With the various kind of promising wireless broadband access technologies, there are more possibilities that mobile node could have multiple connections which may provide different kind of service available.

In some cases, the operator would like to let the mobile node to know services are allowed or not allowed (not available) for the connection. It may influence network routing, policy and quality of service, et al.

There are several candidate protocols such as SLP, DNS(srv records) which could be used for identifying the service available. User could also just try to attempt the connection. If it works, Ok; If not, service will be not available. This will happen anyway if the 'server' for a service is down or temporarily unreachable

This document propose a new option for DHCPv6 [[RFC3315](#)] that provides a mechanism for specifying a list of service identifier which this connection support or don't support. DHCP based mechanism make client know whether to attempt a connection in the first place comparing with SLP, DNS, and trial.

2. Service Identifiers Supported Option

Service which network supported means that it is OK to try that service over the connection. The format of the Service Identifiers Supported Option is as the below, the lifetime of the data for this option is controlled by the t1 times or the OPTION_INFORMATION_REFRESH_TIME (Information-Request/Reply).

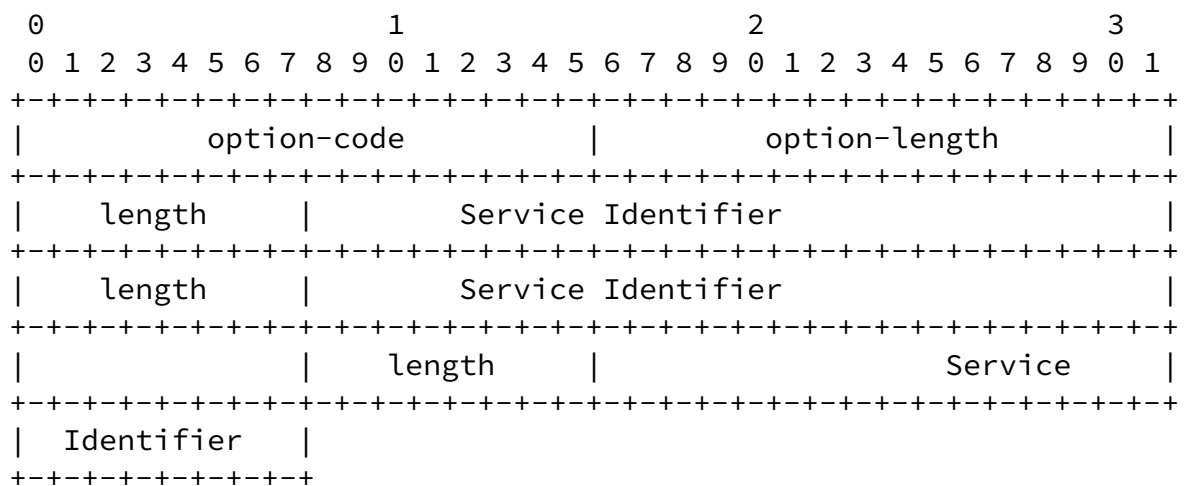


Figure 1: Service Identifiers Supported Option

option-code: OPTION_SERVICE_SUPPORTED (TBD).

option-length: length of the "service identifier list" field in

octets.

length

length of the "service identifier" field in octets. For example 'ims' will be 3, 'voip' will be 4, 'p2p' will be 3. Sometime it need indicate which port number will be supported, in such case ascii string will be used for it like the format of 'length' 'ascii-string' such as '5' '34212'.

Service Identifier

A variable length UTF-8 encoded service identifier string used to identify the requested service. 'ims', 'voip' and 'p2p' are valid examples of Service Identifiers. Some other protocol identifier has been specified by <http://www.iana.org/protocols/>. When it need indicate the port number information, ascii string will be used for the format like '34212'.

3. Service Identifiers Unsupported Option

Service which network unsupported means that it will not be able to try that service over the connection. The format of the Service Identifiers Unsupported Option is:

```

0      1      2      3
0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1 2 3 4 5 6 7 8 9 0 1
+-+-+
|          option-code          |          option-length          |
+-+-+
|    length    |    Service Identifier    |
+-+-+
|    length    |    Service Identifier    |
+-+-+
|          |    length    |          Service          |
+-+-+
| Identifier |
+-+-+

```

Figure 2: Service Identifiers Unsupported Option

option-code: OPTION_SERVICE_UNSUPPORTED (TBD).

option-length: length of the "service identifier list" field in octets.

length

length of the "service identifier" field in octets. For example 'ims' will be 3, 'voip' will be 4, 'p2p' will be 3. Sometime it need indicate which port number will be unsupported, in such case ascii string will be used for it like the format of 'length' 'ascii-string' such as '5' '34212'.

Service Identifier

A variable length UTF-8 encoded service identifier string used to identify the requested service. 'ims', 'voip' and 'p2p' are valid examples of Service Identifiers. Some other protocol identifier has been specified by <http://www.iana.org/protocols/>. When it need indicate the port number information, ascii string will be used for the format like '34212'.

[4.](#) Option usage

There are various kinds of wireless broadband access technologies, one mobile node may have multiple wireless cards, thus a subscriber may choose different connections for different services. The operators DHCPv6 server may provide a list of service identifiers option. The mobile node will decide which service may be used with which connection based on this advertisement of the dhcp option.

A mobile node that receives these options would need to remember which services are available / are not available on each interface. It may influence mobile node local routing policy or routing metrics. if one service could be supported by both wireless link, local routing policy will setup the priority for that service. if the server advertises the Service Identifiers Supported Option with a 0

length list, it indicate that no service is allowed in this connection. if the server advertises the Service Identifiers Unsupported Option with a 0 length list, it indicate that all kinds of service will be allowed in this connection. In the case of a mobile node has no connection with a particular service? It may need subscribe different service or connect with the network operator.

A mobile node could also provide this option with a list of service, the server should use that to limit its response to just those services. A client MAY provide this option with a list of the services it is [and/or is not] interested in. A server MAY use the client's provided option to limit what it places in the response to the client. However, A server is not required to do this and may just send back a configured list. Note that in any case the client MUST include this option in the parameter request list (there is no obligation for a server to return this option if it does not appear in the OR0 option).

[5.](#) Security Considerations

Basic security considerations in DHCP are described in [section 23](#), "Security Considerations" of [RFC3315](#).

There is a possibility that a rogue DHCPv6 server could specify that all service is unsupported which would prevent access. But rogue DHCPv6 server can do a lots of other things like assign a bad IP

address or fake DNS servers, et.

This document defines two new DHCPv6 options, and IANA is requested to assign the following new DHCPv6 Option Codes in the registry maintained in <http://www.iana.org/assignments/dhcpv6-parameters>:

OPTION_SERVICE_SUPPORTED

for the Service Identifier Supported Option.

OPTION_SERVICE_UNSUPPORTED

for the Service Identifier Unsupported Option.

New service identifier names are assigned through Standards Action, as defined in [RFC 5225](#).

'ims', 'voip', 'p2p'

for the service identifier of the IMS, VoIP, and P2P Internet service. And IANA is requested to establish a registry for the service identifier names.

[7.](#) Acknowledgements

Thanks for the comments and review by Ted Lemon, David Miles, Mark Stapp, Shane Kerr, Jari Arkko, Ralph Droms.

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8. Normative References

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