

March 1997

Multicast address allocation extensions options
<[draft-ietf-dhc-multopt-02.txt](#)>

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1. Abstract

This document describes host configuration options that may be used by multicast address allocation protocols[3]. The options include critical information such as the multicast address of the multicast address allocation server(s) and a list of multicast scopes supported by respective servers. These options are designed to work with the extensions to DHCP [1] servers to support multicast address allocation (described in a separate draft), however, their use may not be limited to the above protocol.

2 Requirements

Throughout this document, the words that are used to define the significance of particular requirements are capitalized. These words are:

- o "MUST"

This word or the adjective "REQUIRED" means that the

item is an absolute requirement of this specification.

- o "MUST NOT"

This phrase means that the item is an absolute prohibition of this specification.

- o "SHOULD"

This word or the adjective "RECOMMENDED" means that there may exist valid reasons in particular circumstances to ignore this item, but the full implications should be understood and the case carefully weighed before choosing a different course.

- o "SHOULD NOT"

This phrase means that there may exist valid reasons in particular circumstances when the listed behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.

- o "MAY"

This word or the adjective "OPTIONAL" means that this item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because it enhances the product, for example; another vendor may omit the same item.

3 Terminology

This document uses the following terms:

- o "DHCP client"

A DHCP client is an Internet host using DHCP to obtain configuration parameters such as a network address.

- o "DHCP server"

A DHCP server is an Internet host that returns configuration parameters to DHCP clients.

- o "MDHCP client"

A MDHCP client is a DHCP client that supports MDHCP extensions.

- o "MDHCP server"

A MDHCP server is a DHCP server that supports MDHCP extensions.

4 Multicast Address Allocation Configuration Options

Any client attempting to request a multicast address must know the multicast group address to which the server is listening to and a list of multicast scopes supported by the multicast address servers. The following two options are specifically designed to provide the multicast address server address and the scope list that can specifically be used by the protocol described in [3], however, its use is not limited to the protocol described in [3].

[4.1](#) Multicast Group Address of MDHCP Servers.

This option is used DHCP servers to provide the multicast group address of the MDHCP servers. The MDHCP client can obtain this parameter as part of the normal DHCP protocol message exchange or separately via DHCPINFORM.

Code	Len	Multicast Address			
TBD	4	i1	i2	i3	i4

The code for this option is TBD and the length is 4.

[4.2](#) Multicast Scope List Option.

The format of the multicast scope list option is:

Code	Len	IP Address				Count	List	
107	n	i1	i2	i3	i4	N	l1	ln

Where IP address is the address of the MDHCP server, to its best knowledge, reachable from the client via unicast. The scope list a list of N tuples, where each tuple is of the form,

Scope ID (4 Bytes)	TTL	Desc	Scope Description.
Len			

```

| ID1 | ID2 | ID3 | ID4 | T   | n   | d1 |   | dn |
+-----+-----+-----+-----+-----+-----+-----+...+-----+

```

where scope ID is a unique identifier to designate the scope, TTL is the multicast TTL value for the multicast addresses of the scope, scope description is a string describing the scope (need not be null terminated) and scope len is the length of scope description.

Scope id is numeric representation of the scope and is used by the client to indicate a multicast scope to the server. In order to keep the usage of scope id consistent in the MBONE, this draft SHOULD be coordinated with [3] reserve a scope id for each multicast range in [3]. The scope id with its MSB(most significant bit) of 1 should be used for administratively scoped multicast address range. And the scope id with its MSB of 0 should be used to represent other pre-defined internet scopes.

The code for this option is 107.

Example:

The IP address of the MDHCP server is 10.1.1.1. There are two scopes supported by the multicast address allocation server:
 1) Inside the abcd.com, 2) world. Then this option will be used as:

```

Code Len      IP Address      Count
+-----+-----+-----+-----+-----+-----+
| 107 | 32 | 10 | 1 | 1 | 1 | 2 |
+-----+-----+-----+-----+-----+-----+

```

```

Scope ID    TTL Len Desc
+---+---+---+---+---+---+...+---+---+
|           1 |10 |16 | Inside abcd.com |
+---+---+---+---+---+---+...+---+---+
|           2 |16 |5  | world           |
+---+---+---+---+---+---+...+---+---+

```

4 References

[1] Droms, R., "Dynamic Host Configuration Protocol", [RFC1541](#), October 1993

[2] Alexander, S., and R. Droms, "DHCP Options and BOOTP Vendor

Extensions", [RFC 1533](#), Lachman Technology, Inc., Bucknell University, October 1993.

[3] Meyer, D., ``Administratively scoped IP Multicast''
<[draft-ietf-mboned-admin-ip-space-01.txt](#)>

[4] Patel, B., and Shah, M., ``Multicast address allocation extensions to the Dynamic Host Configuration Protocol'' <[draft-ietf-dhc-mdhcp-00.txt](#)>

5 Author's Address

Baiju V. Patel
Intel Corp.
2111 NE 25th Ave.
Hillsboro, OR 97124

Phone: 503 264 2422
EMail: baiju@ibeam.intel.com

Munil Shah
Microsoft Corporation
One Microsoft Way
Redmond, WA 98052

Phone: 425 703 3924
Email: munils@microsoft.com

This document will expire on April, 1998

