

The Server Range Option for DHCP
<[draft-ietf-dhc-range-00.txt](#)>

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1 Abstract

This document describes a configuration option that may be used by hosts acting as IP forwarders. The option contains information about the networks adjacent to the host and may be required by routing protocols.

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.

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.

4 Server Range Option

Any client that is configured by DHCP[1] may act as an IP packet forwarder. Depending on the network topology, the client may need to participate in a routing protocol conversation with one or more neighboring routers. Part of the input to this conversation is the network that is served by the forwarding client. The attached network can be a simple classless range derived from the IP address and network mask supplied by the DHCP server to the client. Using the mask to obtain just the network prefix, the client can advertise this prefix in the routing protocol conversation.

The network served by a forwarding client, however, can be composed of a series of subnets. Normally only one of these subnets is reflected in the address assigned to a client's interface. The purpose of the Server Range Option is to supply the set of IP addresses that the DHCP server is serving to nearby hosts. From this set of addresses, the forwarding client can derive the set of subnets to advertise to its router neighbors. There are two possible approaches to supplying the addresses. Experimentation will determine which is most useful.

The code for this option is 111 and the length is a multiple of 8.

4.1. Address Range Approach

The option is built by the server as pairs of starting and ending IP addresses, expressing ranges that can represent subnets. The client may have to aggregate ranges to derive a subnet and its mask.

Code	Len	Start1-address				End1-address			
111	n	s1	s2	s3	s4	e1	e2	e3	e4

Start2-address ...			
s1	s2	. . .	

4.2 Prefix and Mask Approach

The option is build by the DHCP server as pairs of subnet prefixes (padded with zeroes to 32 bits) and subnet masks. These are usable directly by the client.

Code	Len	Address-Prefix1				Mask1			
111	n	a1	a2	a3	a4	m1	m2	m3	m4

AddressPrefix2 ...			
a1	a2	. . .	

5 References

- [1] Droms, R., "Dynamic Host Configuration Protocol", [RFC 1541](#), Bucknell University, October 1993.
- [2] Alexander, S., and R. Droms, "DHCP Options and BOOTP Vendor Extensions", [RFC 1533](#), Lachman Technology, Inc., Bucknell University, October 1993.

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