

DHCP Options for Service Location Protocol
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Abstract

The Dynamic Host Configuration Protocol provides a framework for passing configuration information to hosts on a TCP/IP network. Entities using the Service Location Protocol need to find out the address of Directory Agents in order to transact messages. In certain other instances they may need to discover the correct scope to be used in conjunction with the service attributes and URLs which are exchanged using the Service Location Protocol.

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1. Introduction

The Dynamic Host Configuration Protocol [2] provides a framework for passing configuration information to hosts on a TCP/IP network. Entities using the Service Location Protocol [3] need to find out the address of Directory Agents in order to transact messages. In certain other instances they may need to discover the correct scope to be used in conjunction with the service attributes and URLs [1] which are exchanged using the Service Location Protocol.

The scope MAY be denoted in any standardized character set. Values for character encoding can be found in IANA's database <http://www.isi.edu/in-notes/iana/assignments/character-sets> and have the values referred by the MIBEnum value.

Note that each option listed below may be included multiple times in the same DHCP OFFER or DHCP REQUEST. If so, then the options SHOULD be included in order of decreasing preference.

2. Directory Agent Option

This option requests or specifies a Directory Agent (DA), along with zero or more scopes supported by that DA.

```

      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
+-----+-----+-----+-----+-----+-----+-----+-----+
|          Code          |      Length      |D|S|          reserved          |
+-----+-----+-----+-----+-----+-----+-----+-----+
|          (if present) Directory Agent address          |
+-----+-----+-----+-----+-----+-----+-----+-----+
|          Char Encoding          |          scope ...          |
+-----+-----+-----+-----+-----+-----+-----+-----+

```

Code 78

Length variable

D If the 'D' bit is set, the Directory Agent address is

present.

- S If the 'S' bit is set, the scope is present, encoded in the indicated character set.

Char Encoding

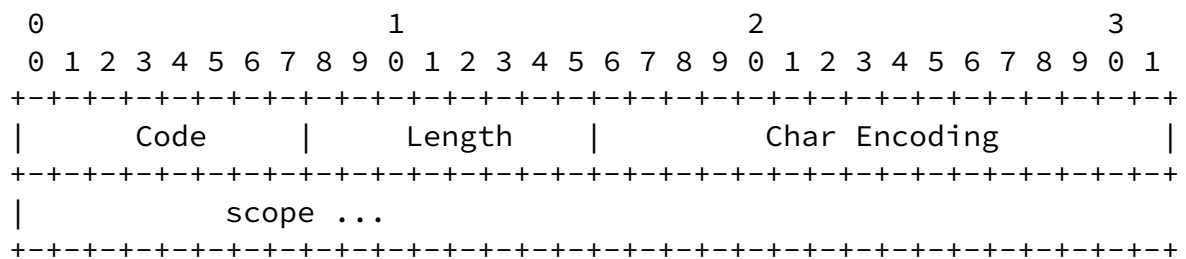
The standardized encoding for the characters making up the string denoting the scope.

scope A string denoting the scope.

Note that more than one Directory Agent option may be present in a DHCP message. Each such option may have the same or different scope. The client may request any Directory Agent with a particular scope, by including the Directory Agent option in a DHCP Request message with no Directory Agent address included (the 'D' bit set to zero), and the string denoting the scope. The length of the scope string is only indicated implicitly by the overall length of the option.

3. Service Scope Option

This option indicates a scope that should be used by a Service Agent (SA) [3], when responding to Service Request messages as specified by the Service Location Protocol.



Code 79

Length variable

Char Encoding

The standardized encoding for the characters making up the string denoting the scope.

scope A string denoting the scope.

Note that more than one Service Scope option may be present in a DHCP message. The length of the scope string is only indicated implicitly by the overall length of the option.

4. Security Considerations

If a malicious host is able to insert fraudulent information in DHCP OFFER packets sent to a prospective client of the Service Location Protocol, then the client will be unable to obtain service, and vulnerable to disclosing information to unauthorized service agents. Likewise, a service agent would find that it might rely on

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fraudulent or otherwise malicious directory agents to advertise its services. Many opportunities for denial of service exist.

This difficulty is inherited from the much larger and more serious problem, viz. securing or authenticating any information whatsoever from a DHCP server (or client!) is not possible in common DHCP deployments.

5. Acknowledgements

Thanks to Erik Guttman for his helpful suggestions in the creation of this draft.

References

- [1] T. Berners-Lee, L. Masinter, and M. McCahill. Uniform Resource Locators (URL). [RFC 1738](#), December 1994.
- [2] Ralph Droms. Dynamic Host Configuration Protocol. [RFC 1541](#), October 1993.
- [3] J. Veizades, E. Guttman, C. Perkins, and S. Kaplan. Service Location Protocol, November 1996. [draft-ietf-svrloc-protocol-15.txt](#) (work in progress).

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