

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. Another option provides an assignment of scope for configuration of SLP User and Service Agents.

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1. Introduction

The Dynamic Host Configuration Protocol [4] provides a framework for passing configuration information to hosts on a TCP/IP network. Entities using the Service Location Protocol, Version 2 [6] need to obtain the address of Directory Agents and Scope configuration. The Service Location Protocol (SLP) provides a default configuration for Scopes and Directory Agents may be discovered using multicast or broadcast. It is useful in a larger deployment to be able to configure SLP Agents using DHCP, so as to centralize the administration and to deploy SLP in networks where multicast routing is not available.

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 [2].

2. Introduction

The DHCP options described below are used to configure Agents using the Service Location Protocol, Version 2 [6].

The SLP Directory Agent option is used to configure User Agents and Service Agents with the location of Directory Agents in the network.

The SLP Scope Option takes precedence over both default and static scope configuration of SLP agents.

3. SLP Directory Agent Option

This option specifies the location of one or more SLP Directory Agents.

```

      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 = 78   |   Length   |   a1   |   a2   |

```

```

+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
|      a3      |      a4      |      a1      |      ...      |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+

```

The SLP Directory Agent Option specifies a list of IP addresses for Directory Agents. Directory Agents MUST be listed in order of preference, if there is an order of preference.

The address of the Directory Agent is given in network byte order. The length of the option MUST always be divisible by 4 and has a minimum length of 4.

The Directory Agents listed in this option MUST be configured with the a non-empty subset of the scope list that the Agent receiving the Directory Agent Option is configured with. See the notes below.

The SLPv2 specification [6] defines how to use this option.

4. SLP Service Scope Option

The scope list is a comma delimited list which indicates the scopes that a SLP Agent is configured to use.

```

      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 = 79  |  Length  |  <Scope List> String ...  |
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+

```

The Length indicates the number of bytes which follow. Since the Scope-List String is encoded using UTF8 characters, it may be the cast that the Length is not the same as the number of characters in the Scope-List String.

The minimum length is 0, and the maximum length is 256. This imposes a limit on the size of the Scope-List String which can be delivered which does not exist in SLP. DHCP administrators will therefore have to be careful to not configure very long scope names or very long

lists of scopes for any Agents in their network.

The Scope List String syntax and usage are defined in the SLPv2 specification [6].

4.1. Zero Length Scope-List String Configuration

A SLP Service Scope Option which indicates a Length of 0 configures the SLP Agent to use "User Selectable Scopes".

The SLP Agent will use the aggregated list of scopes of all known DAs. If no DAs are known, the UA will use SA discovery to determine the list of scopes on the network, as defined in [6].

Note that this configuration is tantamount to removing all centralized control of the scope configuration of hosts on the network. This makes it possible for every User Agent to see every

service. This may not be desirable as users may not be able to or desire to decide which services are appropriate for them.

5. Security Considerations

If a malicious host is able to insert fraudulent information in DHCPPOFFER packets sent to a prospective SLP Agent then the SLP Agent will be unable to obtain service, or may unwittingly be directed to use the incorrect services.

Many opportunities for denial of service exist. A service agent could find that it might rely on fraudulent or otherwise malicious directory agents to advertise its services. DHCPPOFFERs could prevent the regular SLP framework from functioning by directing clients to not use multicast, to use nonexistent directory agents and so on.

These difficulties are 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.

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