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INTERNET DRAFT   IBM
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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
   and naming authority to be used in conjunction with the service
   attributes and URLS which are exchanged using the Service Location
   Protocol.

1. Directory Agent Extension

   This extension specifies a Directory Agent (DA) [3], along with zero
   or more Naming Authorities [2] known to that DA and zero or more
   scopes supported by that DA.

   The code for this extension is 78. Each Naming Authority and each
   scope MUST be a null-terminated string of ASCII characters. The
   lengths of the strings are only indicated implicitly by their null
   termination and the overall length of the extension.

```
 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|   NA count    |  scope count  |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                        (if present)                           |
|              Directory Agent address (16 octets)              |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                          NA list ...                          |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
|                        scope list ...                         |
+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+-+
```

      Code   78

      Length   variable

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

      NA count
                The number of Naming Authorities indicated by strings in
                the NA list following.

      scope count
                The number of scopes indicated by strings in the scope
                list following.

      NA list
                A list of strings denoting Naming Authorities.

      scope list
                A list of strings denoting scopes.

   Note that more than one Directory Agent extension may be present in
   a DHCP message. Each such extension may have the same or different
   lists of Naming Authorities and scopes. The client may request a

Directory Agent with a particular scope, and/or knowledgeable about
schemes defined by a particular Naming Authority, by including the
Directory Agent extension in a DHCP Request message with no Directory
Agent address included (the 'D' bit set to zero), and the appropriate
strings in the NA list and/or scope list.

2. Service Scope Extension

This extension 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   Len
+-----+-----+-----+-----
|  79 |  n  |  Scope ...
+-----+-----+-----+-----
```

Scope is a null-terminated ASCII string, of length 'n' including the
terminating null character.

3. Naming Authority Extension

This extension indicates a naming authority (which specifies the
syntax for schemes that may be used in URLs [1]) for use by entities
with the Service Location Protocol.

```
 Code   Len
+-----+-----+-----+-----+-----+-----
|  80 |  n  |  Naming Authority ...
+-----+-----+-----+-----+-----+-----
```

Naming Authority is a null-terminated ASCII string, of length 'n'
including the terminating null character.

4. Security Considerations

If a malicious host is able to insert fraudulent information in
DHCPOFFER 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
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] Paul E. Hoffman and Ron Daniel, Jr. Generic URN Syntax.
    draft-ietf-uri-urn-syntax-00.txt -- work in progress, April 1995.

[3] J. Veizades, E. Guttman, C. Perkins, and S. Kaplan. Service
    Location Protocol. draft-ietf-svrloc-protocol-14.txt - work in
    progress, June 1996.

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