

Network Working Group
Internet-Draft
Intended status: Standards Track
Expires: August 14, 2010

G. Zorn
Network Zen
Q. Wu
Y. Wang
Huawei
February 10, 2010

The Local Domain Name DHCP Option
draft-wu-hokey-ldn-discovery-01

Abstract

In order to derive a Domain-Specific Root Key (DSRK) from the Extended Master Session Key (EMSK) generated as a side-effect of an Extensible Authentication Protocol (EAP) method, the EAP peer must discover the name of the domain to which it is attached.

This document specifies a Dynamic Host Configuration Protocol (DHCP) option designed to allow a DHCP server to inform clients of the name of the local domain..

Status of This Memo

This Internet-Draft is submitted to IETF in full conformance with the provisions of [BCP 78](#) and [BCP 79](#). This document may not be modified, and derivative works of it may not be created, and it may not be published except as an Internet-Draft.

Internet-Drafts are working documents of the Internet Engineering Task Force (IETF), its areas, and its working groups. Note that other groups may also distribute working documents as Internet-Drafts.

Internet-Drafts are draft documents valid for a maximum of six months and may be updated, replaced, or obsoleted by other documents at any time. It is inappropriate to use Internet-Drafts as reference material or to cite them other than as "work in progress."

The list of current Internet-Drafts can be accessed at <http://www.ietf.org/ietf/lid-abstracts.txt>.

The list of Internet-Draft Shadow Directories can be accessed at <http://www.ietf.org/shadow.html>.

This Internet-Draft will expire on August 14, 2010.

Copyright Notice

Internet-Draft

The Local Domain Name DHCP Option

February 2010

Copyright (c) 2010 IETF Trust and the persons identified as the document authors. All rights reserved.

This document is subject to [BCP 78](#) and the IETF Trust's Legal Provisions Relating to IETF Documents (<http://trustee.ietf.org/license-info>) in effect on the date of publication of this document. Please review these documents carefully, as they describe your rights and restrictions with respect to this document. Code Components extracted from this document must include Simplified BSD License text as described in Section 4.e of the Trust Legal Provisions and are provided without warranty as described in the BSD License.

Table of Contents

1.	Introduction	3
2.	Terminology	3
3.	Option Format	3
3.1.	DHCPv6 Local Domain Name Option	3
4.	Appearance of the Option	4
5.	Client Behavior	4
6.	Relay Agent Behavior	4
7.	Server Behavior	4
8.	Security Considerations	4
9.	IANA considerations	5
10.	References	5
10.1.	Normative References	5
10.2.	Informative References	5

Internet-Draft

The Local Domain Name DHCP Option

February 2010

1. Introduction

The EAP Re-authentication Protocol (ERP) [[RFC5296](#)] is designed to allow faster re-authentication of a mobile device which was previously authenticated by means of the Extensible Authentication Protocol (EAP, [[RFC3748](#)]). Considering that the local root key (e.g., DSRK [[RFC5295](#)]) is generated using the local domain name (LDN), LDN discovery is an important part of re-authentication. As described in [RFC 5296](#) [[RFC5296](#)], the local domain name can be learned by the mobile device through the ERP exchange or via a lower-layer mechanism. However, no lower-layer mechanisms for LDN discovery have yet been defined.

This document specifies an extension to DHCP for local domain name discovery.

2. Terminology

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 [[RFC2119](#)].

3. Option Format

In DHCPv6-based local domain name discovery, the LDN option is used by the DHCPv6 client (MD) to obtain the local domain name from the DHCP Server after full EAP authentication has taken place.

3.1. DHCPv6 Local Domain Name Option

The format of this option is:

```

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
+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+---+
| OPTION_LOCAL_DOMAIN_NAME          |          option-length          |

```

```

+-----+
|           local-domain-name ...
+-----+

```

Figure 1

option code OPTION_LOCAL_DOMAIN_NAME (TBD)

option-length Length of the 'local domain name' field in octets

local-domain-name This field contains the name of the local domain and MUST be encoded as specified in Section "8 of [RFC 3315](#) [[RFC3315](#)]

4. Appearance of the Option

The LDN option MUST NOT appear in DHCPv6 messages other than the types Solicit, Advertise, Request, Information-Request and Reply. The option-code of the LDN option MAY be included in the Option Request Option in the DHCPv6 message types Solicit, Request and Information-Request.

5. Client Behavior

If a DHCPv6 client (MD) doesn't know the local domain name and requires the DHCP Server to provide the DHCPv6 LDN option, it MUST include an Option Request option requesting the DHCPv6 LDN option, as described in [Section 22.7 of RFC 3315](#) [[RFC3315](#)].

When the DHCPv6 client receives a LDN option with the local domain name present in it, it MUST verify that the option length is no more than 256 octets (the maximum length of a single FQDN allowed by DNS), and that the local domain name is a properly encoded single FQDN, as specified in [Section 8](#) "Representation and Use of Domain Names" of the [RFC3315](#) [[RFC3315](#)].

6. Relay Agent Behavior

If a DHCPv6 relay agent has pre-existing knowledge of the local

domain name (for example, from a previous AAA exchange), it SHOULD include it in the DHCPv6 LDN option and forward to the DHCPv6 server.

7. Server Behavior

If the option code for the LDN option is included in an Option Request option, the server SHOULD return the DHCPv6 LDN option to the client. If a DHCPv6 LDN option is received from a relay agent with a non-empty local-domain-name field, the server SHOULD extract this option and include it in the reply message.

8. Security Considerations

The communication between the DHCP client and the DHCP server for the exchange of local domain name information is security sensitive and requires authentication, integrity and replay protection. Either lower-layer security (such as link layer security established as part of the network access authentication protocol run) or DHCP security [[RFC3118](#)] can be used.

Zorn, et al.

Expires August 14, 2010

[Page 4]

Internet-Draft

The Local Domain Name DHCP Option

February 2010

9. IANA considerations

IANA is requested to allocate one DHCPv6 Option code, referencing this document.

10. References

10.1. Normative References

- [RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", [BCP 14](#), [RFC 2119](#), March 1997.
- [RFC3315] Droms, R., Bound, J., Volz, B., Lemon, T., Perkins, C., and M. Carney, "Dynamic Host Configuration Protocol for IPv6 (DHCPv6)", [RFC 3315](#), July 2003.
- [RFC5295] Salowey, J., Dondeti, L., Narayanan, V., and M. Nakhjiri, "Specification for the Derivation of Root Keys from an Extended Master Session Key (EMSK)", [RFC 5295](#), August 2008.
- [RFC5296] Narayanan, V. and L. Dondeti, "EAP Extensions for EAP Re-

authentication Protocol (ERP)", [RFC 5296](#), August 2008.

[10.2.](#) Informative References

- [RFC3118] Droms, R. and W. Arbaugh, "Authentication for DHCP Messages", [RFC 3118](#), June 2001.
- [RFC3748] Aboba, B., Blunk, L., Vollbrecht, J., Carlson, J., and H. Levkowitz, "Extensible Authentication Protocol (EAP)", [RFC 3748](#), June 2004.

Authors' Addresses

Glen Zorn
Network Zen
1463 East Republican Street
Seattle, Washington 98112
USA

Phone: +1 206 931 0768
EMail: gwz@net-zen.net

Zorn, et al.

Expires August 14, 2010

[Page 5]

Internet-Draft

The Local Domain Name DHCP Option

February 2010

Qin Wu
Huawei Technologies Co., Ltd.
Site B, Floor 12, Huihong Mansion, No.91 Baixia Rd.
Nanjing, Jiangsu 21001
China

Phone: +86-25-84565892
EMail: sunseawq@huawei.com

Yungui Wang
Huawei Technologies Co., Ltd.
Site B, Floor 10, HuiHong Mansion, No.91 BaiXia Rd.
Nanjing, Jiangsu 210001
P.R. China

Phone: +86 25 84565893
EMail: w52006@huawei.com