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The ERP Local Domain Name DHCPv6 Option
draft-ietf-hokey-ldn-discovery-07

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 Version 6 (DHCPv6) option designed to allow a DHCPv6 server to inform clients using EAP of the name of the local domain.

Status of this Memo

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This Internet-Draft will expire on October 14, 2011.

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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 [RFC3748]. Given that the local root key (e.g., DSRK RFC 5295 *[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 DHCPv6 for local domain name discovery by ERP peers.

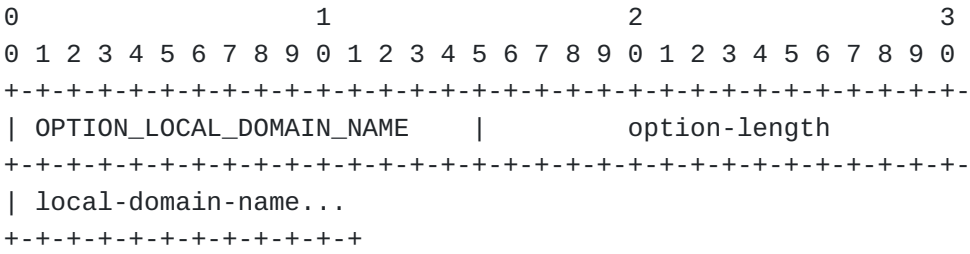
2. Terminology

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 to obtain the local domain name from the DHCPv6 Server after full EAP authentication has taken place.

3.1. DHCPv6 Local Domain Name Option



The format of this option is:

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]* note that this encoding does enable the use of internationalized domain names, but only as a set of A-labels [RFC5890].

4. Client Behavior

If a DHCPv6 client doesn't know the local domain name and requires the DHCPv6 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 recieves 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 RFC3315 [RFC3315].

5. 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 an instance of the DHCPv6 LDN option and forward to the DHPv6 server

as a suboption of the Relay-Supplied Options option [I-D.ietf-dhc-dhcpv6-relay-supplied-options].

6. Security Considerations

The communication between the DHCPv6 client and the DHCPv6 server for the exchange of local domain name information is security sensitive and requires authentication, integrity and replay protection. DHCPv6 security [RFC3315] can be used for this purpose.

7. IANA considerations

IANA is requested to assign one new option code from the registry of DHCP Option Codes maintained at http://www.iana.org/assignments/dhcpv6-parameters, referencing this document.

8. References

8.1. Normative References

[RFC2119]	Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.
[RFC5296]	Narayanan, V. and L. Dondeti, "EAP Extensions for EAP Re-authentication Protocol (ERP)", RFC 5296, August 2008.
[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.
[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.
[I-D.ietf-dhc-dhcpv6-relay-supplied-options]	Lemon, T and W Wu, "Relay-Supplied DHCP Options", Internet-Draft draft-ietf-dhc-dhcpv6-relay-supplied-options-02, September 2010.

8.2. Informative References

[RFC3748]	Aboba, B., Blunk, L., Vollbrecht, J., Carlson, J. and H. Levkowetz, "Extensible Authentication Protocol (EAP)", RFC 3748, June 2004.
[RFC5890]	Klensin, J., "Internationalized Domain Names for Applications (IDNA): Definitions and Document Framework", RFC 5890, August 2010.

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