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Feature Discovery in Lightweight Directory Access Protocol (LDAP)

Status of this Memo

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Abstract

The Lightweight Directory Access Protocol (LDAP) is an extensible protocol with numerous elective features. This document introduces a general mechanism for discovery of elective features and extensions which cannot be discovered using existing mechanisms.

1. Background and Intended Use

The Lightweight Directory Access Protocol (LDAP) [RFC3377] is an extensible protocol with numerous elective features. LDAP provides mechanisms for a client to discover supported protocol versions, controls, extended operations, Simple Authentication and Security Layer (SASL) mechanisms, and subschema information. However, these mechanisms are not designed to support general feature discovery.

This document describes a simple, general-purpose mechanism which clients may use to discover the set of elective features supported by a server. For example, this mechanism could be used by a client to discover whether or not the server supports requests for all operational attributes, e.g., "+" [RFC3673]. As another example, this mechanism could be used to discover absolute true, e.g., "(&)" and false, e.g., "(|)", search filters [T-F] support.

This document extends the LDAP Protocol Mechanism registry [RFC3383] to support registration of values of the supportedFeatures attribute. This registry is managed by the Internet Assigned Numbers Authority (IANA).

Schema definitions are provided using LDAP description formats [RFC2252]. Definitions provided here are formatted (line wrapped) for readability.

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 BCP 14 [RFC2119].

2. Discovery of supported features

Each elective feature whose support may be discovered SHALL be identified by an Object Identifier (OID). A server advertises its support for a given feature by providing the OID associated with the feature as a value of the 'supportedFeatures' attribute held in the root DSE. A client may examine the values of this attribute to determine if a particular feature is supported by the server. A client MUST ignore values it doesn't recognize as they refer to elective features it doesn't implement.

Features associated with Standard Track protocol mechanisms MUST be registered. Features associated with other protocol mechanisms SHOULD be registered. Procedures for registering protocol mechanisms are described in BCP 64 [RFC3383]. The word "Feature" should be placed in the usage field of the submitted LDAP Protocol Mechanism template.

The 'supportedFeatures' attribute type is described as follows:

```
( 1.3.6.1.4.1.4203.1.3.5
  NAME 'supportedFeatures'
  DESC 'features supported by the server'
  EQUALITY objectIdentifierMatch
  SYNTAX 1.3.6.1.4.1.1466.115.121.1.38
  USAGE dSAOperation )
```

Servers MUST be capable of recognizing this attribute type by the name 'supportedFeatures'. Servers MAY recognize the attribute type by other names.

3. Security Considerations

As rogue clients can discover features of a server by other means (such as by trial and error), this feature discovery mechanism is not believed to introduce any new security risk to LDAP.

4. IANA Considerations

4.1. Registration of Features as Protocol Mechanisms

Future specifications detailing LDAP features are to register each feature as a LDAP Protocol Mechanism per guidance given in BCP 64 [RFC3383]. A usage of "Feature" in a Protocol Mechanism registration template indicates that the value to be registered is associated with an LDAP feature.

4.2. Registration of the supportedFeatures descriptor

The IANA has registered the LDAP 'supportedFeatures' descriptor. The following registration template is suggested:

```
Subject: Request for LDAP Descriptor Registration
Descriptor (short name): supportedFeatures
Object Identifier: 1.3.6.1.4.1.4203.1.3.5
Person & email address to contact for further information:
    Kurt Zeilenga <kurt@OpenLDAP.org>
Usage: Attribute Type
Specification: RFC 3674
Author/Change Controller: IESG
```

This OID was assigned [ASSIGN] by OpenLDAP Foundation under its IANA assigned private enterprise allocation [PRIVATE] for use in this specification.

5. Acknowledgment

This document is based upon input from the IETF LDAPEXT working group.

6. Intellectual Property Statement

The IETF invites any interested party to bring to its attention any copyrights, patents or patent applications, or other proprietary rights which may cover technology that may be required to practice this standard. Please address the information to the IETF Executive Director.

7. References

7.1. Normative References

[RFC2119] Bradner, S., "Key words for use in RFCs to Indicate Requirement Levels", BCP 14, RFC 2119, March 1997.

[RFC2252] Wahl, M., Coulbeck, A., Howes, T. and S. Kille, "Lightweight Directory Access Protocol (v3): Attribute Syntax Definitions", RFC 2252, December 1997.

[RFC3377] Hodges, J. and R. Morgan, "Lightweight Directory Access Protocol (v3): Technical Specification", RFC 3377, September 2002.

[RFC3383] Zeilenga, K., "Internet Assigned Numbers Authority (IANA) Considerations for Lightweight Directory Access Protocol (LDAP)", BCP 64, RFC 3383, September 2002.

7.2. Informative References

[RFC3673] Zeilenga, K., "Lightweight Directory Access Protocol version 3 (LDAPv3): All Operational Attributes", RFC 3673, December 2003.

[T-F] Zeilenga, K., "LDAP True/False Filters", Work in Progress.

[ASSIGN] OpenLDAP Foundation, "OpenLDAP OID Delegations", http://www.openldap.org/foundation/oid-delegate.txt.

[PRIVATE] IANA, "Private Enterprise Numbers", http://www.iana.org/assignments/enterprise-numbers.

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9. Full Copyright Statement

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