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Lightweight Directory Access Protocol (LDAP) Absolute True and False Filters

Status of This Memo

Copyright Notice

Abstract

This document extends the Lightweight Directory Access Protocol (LDAP) to support absolute True and False filters based upon similar capabilities found in X.500 directory systems. The document also extends the String Representation of LDAP Search Filters to support these filters.

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1. Background

The X.500 Directory Access Protocol (DAP) [X.511] supports absolute True and False assertions. An 'and' filter with zero elements always evaluates to True. An 'or' filter with zero elements always evaluates to False. These filters are commonly used when requesting DSA-specific Entries (DSEs) that do not necessarily have 'objectClass' attributes; that is, where "(objectClass=*)" may evaluate to False.

Although LDAPv2 [RFC1777][RFC3494] placed no restriction on the number of elements in 'and' and 'or' filter sets, the LDAPv2 string representation [RFC1960][RFC3494] could not represent empty 'and' and 'or' filter sets. Due to this, absolute True or False filters were (unfortunately) eliminated from LDAPv3 [RFC4510].

This documents extends LDAPv3 to support absolute True and False assertions by allowing empty 'and' and 'or' in Search filters [RFC4511] and extends the filter string representation [RFC4515] to allow empty filter lists.

It is noted that certain search operations, such as those used to retrieve subschema information [RFC4512], require use of particular filters. This document does not change these requirements.

This feature is intended to allow a more direct mapping between DAP and LDAP (as needed to implement DAP-to-LDAP gateways).

In this document, the key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" are to be interpreted as described in BCP 14 [RFC2119].

2. Absolute True and False Filters

Implementations of this extension SHALL allow 'and' and 'or' choices with zero filter elements.

An 'and' filter consisting of an empty set of filters SHALL evaluate to True. This filter is represented by the string "(&)".

An 'or' filter consisting of an empty set of filters SHALL evaluate to False. This filter is represented by the string "(|)".

Servers supporting this feature SHOULD publish the Object Identifier 1.3.6.1.4.1.4203.1.5.3 as a value of the 'supportedFeatures' [RFC4512] attribute in the root DSE.

Clients supporting this feature SHOULD NOT use the feature unless they know that the server supports it.

3. Security Considerations

The (re)introduction of absolute True and False filters is not believed to raise any new security considerations.

Implementors of this (or any) LDAPv3 extension should be familiar with general LDAPv3 security considerations [RFC4510].

4. IANA Considerations

Registration of this feature has been completed by the IANA [RFC4520].

Subject: Request for LDAP Protocol Mechanism Registration Object Identifier: 1.3.6.1.4.1.4203.1.5.3 Description: True/False filters Person & email address to contact for further information:
Kurt Zeilenga <kurt@openldap.org> Usage: Feature Specification: RFC 4526 Author/Change Controller: IESG Comments: none

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

5. References

5.1. Normative References

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

[RFC4510] Zeilenga, K., Ed, "Lightweight Directory Access Protocol (LDAP): Technical Specification Road Map", RFC 4510, June 2006.

[RFC4511] Sermersheim, J., Ed., "Lightweight Directory Access Protocol (LDAP): The Protocol", RFC 4511, June 2006.

[RFC4512] Zeilenga, K., "Lightweight Directory Access Protocol (LDAP): Directory Information Models", RFC 4512, June 2006.

[RFC4515] Smith, M., Ed. and T. Howes, "Lightweight Directory Access Protocol (LDAP): String Representation of Search Filters", RFC 4515, June 2006.

5.2. Informative References

[RFC1777] Yeong, W., Howes, T., and S. Kille, "Lightweight Directory Access Protocol", RFC 1777, March 1995.

[RFC1960] Howes, T., "A String Representation of LDAP Search Filters", RFC 1960, June 1996.

[RFC3494] Zeilenga, K., "Lightweight Directory Access Protocol version 2 (LDAPv2) to Historic Status", RFC 3494, March 2003.

[RFC4520] Zeilenga, K., "Internet Assigned Numbers Authority (IANA) Considerations for the Lightweight Directory Access Protocol (LDAP)", BCP 64, RFC 4520, June 2006.

[X.500] International Telecommunication Union - Telecommunication Standardization Sector, "The Directory -- Overview of concepts, models and services," X.500(1993) (also ISO/IEC 9594-1:1994).

[X.501] International Telecommunication Union - Telecommunication Standardization Sector, "The Directory -- Models," X.501(1993) (also ISO/IEC 9594-2:1994).

[X.511] International Telecommunication Union - Telecommunication Standardization Sector, "The Directory: Abstract Service Definition", X.511(1993) (also ISO/IEC 9594-3:1993).

[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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