IANA Considerations for LDAP
<draft-ietf-ldapbis-bcp64-07.txt>

Status of Memo

   This document is intended to be, after appropriate review and
   revision, submitted to the RFC Editor as a Best Current Practice
   document. This document is intended to replace RFC 3383.
   Distribution of this memo is unlimited. Technical discussion of this
   document will take place on the IETF LDAP Revision Working Group
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Abstract

    This document provides procedures for registering extensible elements
    of Lightweight Directory Access Protocol (LDAP). The document also
    provides guidelines to Internet Assigned Numbers Authority (IANA)
    describing conditions under which new values can be assigned.

[1](#). Introduction

    The Lightweight Directory Access Protocol [Roadmap] (LDAP) is an
    extensible protocol. LDAP supports:

       - addition of new operations,
       - extension of existing operations, and
       - extensible schema.

    This document details procedures for registering values of used to
    unambiguously identify extensible elements of the protocol including:

       - LDAP message types;
       - LDAP extended operations and controls;
       - LDAP result codes;
       - LDAP authentication methods;
       - LDAP attribute description options; and
       - Object Identifier descriptors.

    These registries are maintained by the Internet Assigned Numbers
    Authority (IANA).

    In addition, this document provides guidelines to IANA describing the
    conditions under which new values can be assigned.

    This document replaces RFC 3383.

[2](#). Terminology and Conventions

    This section details terms and conventions used in this document.

[2.1](#). Policy Terminology

    The terms "IESG Approval", "Standards Action", "IETF Consensus",
    "Specification Required", "First Come First Served", "Expert Review",
    and "Private Use" are used as defined in BCP 26 [RFC2434].

    The term "registration owner" (or "owner") refers to the party

authorized to change a value's registration.

2.2. Requirement 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 BCP 14 [RFC2119]. In
this case, "the specification" as used by BCP 14 refers to the
processing of protocols being submitted to the IETF standards
process.

2.3. Common ABNF Productions

A number of syntaxes in this document are described using ABNF
[ABNF]. These syntaxes rely on the following common productions:

```
    ALPHA = %x41-5A / %x61-7A    ; "A"-"Z" / "a"-"z"
    LDIGIT = %x31-39             ; "1"-"9"
    DIGIT = %x30 / LDIGIT        ; "0"-"9"
    HYPHEN = %x2D                ; "-"
    DOT = %x2E                   ; "."
    number = DIGIT / ( LDIGIT 1*DIGIT )
    keychar = ALPHA / DIGIT / HYPHEN
    leadkeychar = ALPHA
    keystring = leadkeychar *keychar
    keyword = keystring
```

Keywords are case-insensitive.

3. IANA Considerations for LDAP

This section details each kind of protocol value which can be
registered and provides IANA guidelines on how to assign new values.

IANA may reject obviously bogus registrations.

LDAP values specified in RFCs MUST be registered. Other LDAP values,
except those in private-use name spaces, SHOULD be registered. RFCs
SHOULD NOT reference, use, or otherwise recognize unregistered LDAP
values.

3.1. Object Identifiers

Numerous LDAP schema and protocol elements are identified by Object

Identifiers (OIDs) [X.680]. Specifications which assign OIDs to
elements SHOULD state who delegated the OIDs for its use.

For IETF developed elements, specifications SHOULD use OIDs under
"Internet Directory Numbers" (1.3.6.1.1.x). For elements developed
by others, any properly delegated OID can be used, including those
under "Internet Directory Numbers" (1.3.6.1.1.x) or "Internet Private
Enterprise Numbers" (1.3.6.1.4.1.x).

Internet Directory Numbers (1.3.6.1.1.x) will be assigned upon Expert
Review with Specification Required. Only one OID per specification
will be assigned. The specification MAY then assign any number of
OIDs within this arc without further coordination with IANA.

Internet Private Enterprise Numbers (1.3.6.1.4.1.x) are assigned by
IANA <http://www.iana.org/cgi-bin/enterprise.pl>. Practices for IANA
assignment of Internet Private Enterprise Numbers is detailed in RFC
2578 [RFC2578].

To avoid interoperability problems between early implementations of a
"work in progress" and implementations of the published specification
(e.g., the RFC), experimental OIDs SHOULD be used in "works in
progress" and early implementations. OIDs under the Internet
Experimental OID arc (1.3.6.1.3.x) may be used for this purpose.
Practices for IANA assignment of these Internet Experimental numbers
is detailed in RFC 2578 [RFC2578]

3.2 Protocol Mechanisms

LDAP provides a number of Root DSE attributes for discovery of
protocol mechanisms identified by OIDs, including the
supportedControl, supportedExtension, and supportedFeatures
attributes [Models],

A registry of OIDs used for discover of protocol mechanisms is
provided to allow implementors and others to locate the technical
specification for these protocol mechanisms. Future specifications
of additional Root DSE attributes holding values identifying protocol
mechanisms MAY extend this registry for their values.

Protocol Mechanisms are registered on a First Come First Served
basis.

3.3 LDAP Syntaxes

This registry provides a listing of LDAP syntaxes [Models]. Each

LDAP syntax is identified by an object identifier (OID). This
registry is provided to allow implementors and others to locate the
technical specification describing a particular LDAP Syntax.

LDAP Syntaxes are registered on a First Come First Served with
Specification Required basis.

Note: unlike object classes, attribute types and various other kinds
of schema elements, descriptors are not used in LDAP to identify LDAP
Syntaxes.

3.4. Object Identifier Descriptors

LDAP allows short descriptive names (or descriptors) to be used
instead of a numeric Object Identifier to identify select protocol
extensions [Protocol], schema elements [Models], LDAP URL [LDAPURL]
extensions, and other objects.

While the protocol allows the same descriptor to refer to different
object identifiers in certain cases and the registry supports
multiple registrations of the same descriptor (each indicating a
different kind of schema element and different object identifier),
multiple registrations of the same descriptor are to be avoided. All
such multiple registration requests require Expert Review.

Descriptors are restricted to strings of UTF-8 encoded Unicode
characters restricted by the following ABNF:

```
    name = keystring
```

Descriptors are case-insensitive.

Multiple names may be assigned to a given OID. For purposes of
registration, an OID is to be represented in numeric OID form (e.g.,
1.1.0.23.40) conforming to the ABNF:

```
    numericoid = number 1*( DOT number )
```

While the protocol places no maximum length restriction upon
descriptors, they should be short. Descriptors longer than 48
characters may be viewed as too long to register.

A value ending with a hyphen ("-") reserves all descriptors which
start with that value. For example, the registration of the option
"descrFamily-" reserves all options which start with "descrFamily-"
for some related purpose.

Descriptors beginning with "x-" are for Private Use and cannot be
registered.

Descriptors beginning with "e-" are reserved for experiments and will
be registered on a First Come First Served basis.

All other descriptors require Expert Review to be registered.

The registrant need not "own" the OID being named.

The OID name space is managed by The ISO/IEC Joint Technical
Committee 1 - Subcommittee 6.

3.5. AttributeDescription Options

An AttributeDescription [Models] can contain zero or more options
specifying additional semantics. An option SHALL be restricted to a
string UTF-8 encoded Unicode characters limited by the following
ABNF:

        option = keystring

Options are case-insensitive.

While the protocol places no maximum length restriction upon option
strings, they should be short. Options longer than 24 characters may
be viewed as too long to register.

Values ending with a hyphen ("-") reserve all option names which
start with the name. For example, the registration of the option
"optionFamily-" reserves all options which start with "optionFamily-"
for some related purpose.

Options beginning with "x-" are for Private Use and cannot be
registered.

Options beginning with "e-" are reserved for experiments and will be
registered on a First Come First Served basis.

All other options require Standards Action or Expert Review with
Specification Required to be registered.

3.6. LDAP Message Types

Each protocol message is encapsulated in an LDAPMessage envelope
[Protocol]. The protocolOp CHOICE indicates the type of message

encapsulated. Each message type consists of an ASN.1 identifier in
the form of a keyword and a non-negative choice number. The choice
number is combined with the class (APPLICATION) and data type
(CONSTRUCTED or PRIMITIVE) to construct the BER tag in the message's
encoding. The choice numbers for existing protocol messages are
implicit in the protocol's ASN.1 defined in [Protocol].

New values will be registered upon Standards Action.

Note: LDAP provides extensible messages which reduces, but does not
      eliminate, the need to add new message types.

3.7. LDAP Authentication Method

The LDAP Bind operation supports multiple authentication methods
[Protocol]. Each authentication choice consists of an ASN.1
identifier in the form of a keyword and a non-negative integer.

The registrant SHALL classify the authentication method usage using
one of the following terms:

        COMMON   - method is appropriate for common use on the
                      Internet,
        LIMITED USE - method is appropriate for limited use,
        OBSOLETE   - method has been deprecated or otherwise found to
                      be inappropriate for any use.

Methods without publicly available specifications SHALL NOT be
classified as COMMON. New registrations of class OBSOLETE cannot be
registered.

New authentication method integers in the range 0-1023 require
Standards Action to be registered. New authentication method
integers in the range 1024-4095 require Expert Review with
Specification Required. New authentication method integers in the
range 4096-16383 will be registered on a First Come First Served
basis. Keywords associated with integers in the range 0-4095 SHALL
NOT start with "e-" or "x-". Keywords associated with integers in
the range 4096-16383 SHALL start with "e-". Values greater than or
equal to 16384 and keywords starting with "x-" are for Private Use
and cannot be registered.

Note: LDAP supports Simple Authentication and Security Layers [SASL]
      as an authentication choice. SASL is an extensible
      authentication framework.

3.8. LDAP Result Codes

   LDAP result messages carry an resultCode enumerated value to indicate
   the outcome of the operation [Protocol]. Each result code consists
   of a ASN.1 identifier in the form of a keyword and a non-negative
   integer.

   New resultCodes integers in the range 0-1023 require Standards Action
   to be registered. New resultCode integers in the range 1024-4095
   require Expert Review with Specification Required. New resultCode
   integers in the range 4096-16383 will be registered on a First Come
   First Served basis. Keywords associated with integers in the range
   0-4095 SHALL NOT start with "e-" or "x-". Keywords associated with
   integers in the range 4096-16383 SHALL start with "e-". Values
   greater than or equal to 16384 and keywords starting with "x-" are
   for Private Use and cannot be registered.

3.9. LDAP Search Scope

   LDAP SearchRequest messages carry a scope enumerated value to
   indicate the extend of search within the DIT [Protocol] Each search
   value consists of a ASN.1 identifier in the form of a keyword and a
   non-negative integer.

   New scope integers in the range 0-1023 require Standards Action to be
   registered. New scope integers in the range 1024-4095 require Expert
   Review with Specification Required. New scope integers in the range
   4096-16383 will be registered on a First Come First Served basis.
   Keywords associated with integers in the range 0-4095 SHALL NOT start
   with "e-" or "x-". Keywords associated with integers in the range
   4096-16383 SHALL start with "e-". Values greater than or equal to
   16384 and keywords starting with "x-" are for Private Use and cannot
   be registered.

3.10. LDAP Filter Choice

   LDAP filters are used in making assertions against an object
   represented in the directory [Protocol]. The Filter CHOICE indicates
   a type of assertion. Each Filter CHOICE consists of an ASN.1
   identifier in the form of a keyword and a non-negative choice number.
   The choice number is combined with the class (APPLICATION) and data
   type (CONSTRUCTED or PRIMITIVE) to construct the BER tag in the
   message's encoding.

   Note: LDAP provides the extensibleMatching choice which reduces, but
         does not eliminate, the need to add new filter choices.

3.11. LDAP ModifyRequest Operation Type

   The LDAP ModifyRequest carries a sequence of modification operations
   [Protocol]. Each kind (e.g., add, delete, replace) of operation is
   consists of a ASN.1 identifier in the form of a keyword and a
   non-negative integer.

   New operation type integers in the range 0-1023 require Standards
   Action to be registered. New operation type integers in the range
   1024-4095 require Expert Review with Specification Required. New
   operation type integers in the range 4096-16383 will be registered on
   a First Come First Served basis. Keywords associated with integers
   in the range 0-4095 SHALL NOT start with "e-" or "x-". Keywords
   associated with integers in the range 4096-16383 SHALL start with
   "e-". Values greater than or equal to 16384 and keywords starting
   with "x-" are for Private Use and cannot be registered.

3.12. LDAP authzId Prefixes

   Authorization Identities in LDAP are strings conforming to the
   <authzId> production [AuthMeth]. This production is extensible.
   Each new specific authorization form is identified by a prefix string
   conforming to the following ABNF:

        prefix = keystring COLON
        COLON = %x3A ; COLON (":" U+003A)

   Prefixes are case-insensitive.

   While the protocol places no maximum length restriction upon prefix
   strings, they should be short. Prefixes longer than 12 characters
   may be viewed as too long to register.

   Prefixes beginning with "x-" are for Private Use and cannot be
   registered.

   Prefixes beginning with "e-" are reserved for experiments and will be
   registered on a First Come First Served basis.

   All other prefixes require Standards Action or Expert Review with
   Specification Required to be registered.

3.13. Directory Systems Names

   The IANA-maintained "Directory Systems Names" registry [IANADSN] of
   valid keywords for well known attributes was used in the LDAPv2

string representation of a distinguished name [RFC1779]. LDAPv2 is
now Historic [RFC3494].

Directory systems names are not known to be used in any other
context. LDAPv3 [LDAPDN] uses Object Identifier Descriptors [Section
3.2] (which have a different syntax than directory system names).

New Directory System Names will no longer be accepted. For
historical purposes, the current list of registered names should
remain publicly available.

4. Registration Procedure

The procedure given here MUST be used by anyone who wishes to use a
new value of a type described in Section 3 of this document.

The first step is for the requester to fill out the appropriate form.
Templates are provided in Appendix A.

If the policy is Standards Action, the completed form SHOULD be
provided to the IESG with the request for Standards Action. Upon
approval of the Standards Action, the IESG SHALL forward the request
(possibly revised) to IANA. The IESG SHALL be regarded as the
registration owner of all values requiring Standards Action.

If the policy is Expert Review, the requester SHALL post the
completed form to the <directory@apps.ietf.org> mailing list for
public review. The review period is two (2) weeks. If a revised
form is later submitted, the review period is restarted. Anyone may
subscribe to this list by sending a request to
<directory-request@apps.ietf.org>. During the review, objections may
be raised by anyone (including the Expert) on the list. After
completion of the review, the Expert, based upon public comments,
SHALL either approve the request and forward it to the IANA OR deny
the request. In either case, the Expert SHALL promptly notify the
requester of the action. Actions of the Expert may be appealed
[RFC2026]. The Expert is appointed by Applications Area Director(s).
The requester is viewed as the registration owner of values
registered under Expert Review.

If the policy is First Come First Served, the requester SHALL submit
the completed form directly to the IANA: <iana@iana.org>. The
requester is viewed as the registration owner of values registered
under First Come First Served.

Neither the Expert nor IANA will take position on the claims of
copyright or trademarks issues regarding completed forms.

Prior to submission of the Internet Draft (I-D) to the RFC Editor but
after IESG review and tentative approval, the document editor SHOULD
revise the I-D to use registered values.

5. Registration Maintenance

This section discusses maintenance of registrations.

5.1. Lists of Registered Values

IANA makes lists of registered values readily available to the
Internet community on their web site: <http://www.iana.org/>.

5.2. Change Control

The registration owner MAY update the registration subject to the
same constraints and review as with new registrations. In cases
where the registration owner is not unable or unwilling to make
necessary updates, the IESG MAY assume ownership of the registration
in order to update the registration.

5.3. Comments

For cases where others (anyone other than the registration owner)
have significant objections to the claims in a registration and the
registration owner does not agree to change the registration,
comments MAY be attached to a registration upon Expert Review. For
registrations owned by the IESG, the objections SHOULD be addressed
by initiating a request for Expert Review.

The form to these requests is ad hoc, but MUST include the specific
objections to be reviewed and SHOULD contain (directly or by
reference) materials supporting the objections.

6. Security Considerations

The security considerations detailed in BCP 26 [RFC2434] are
generally applicable to this document. Additional security
considerations specific to each name space are discussed in Section 3
where appropriate.

Security considerations for LDAP are discussed in documents
comprising the technical specification [Roadmap].

7. **Acknowledgment**

   This document is a product of the IETF LDAP Revision (LDAPBIS)
   Working Group (WG). This document is a revision of RFC 3383, also a
   product of the LDAPBIS WG.

   This document includes text borrowed from "Guidelines for Writing an
   IANA Considerations Section in RFCs" [RFC2434] by Thomas Narten and
   Harald Alvestrand.

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9. **References**

   [[Note to the RFC Editor: please replace the citation tags used in
   referencing Internet-Drafts with tags of the form RFCnnnn where
   possible.]]

9.1. **Normative References**

   [RFC2026]   Bradner, S., "The Internet Standards Process -- Revision
                  3", BCP 9 (also RFC 2026), October 1996.

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

   [RFC2434]   Narten, T. and H. Alvestrand, "Guidelines for Writing an
                  IANA Considerations Section in RFCs", BCP 26 (also RFC
                  2434), October 1998.

   [RFC2578]   K. McCloghrie, D. Perkins, J. Schoenwaelder, "Structure
                  of Management Information Version 2 (SMIv2)", RFC 2578
                  (STD: 58), April 1999.
   [RFC3629]   Yergeau, F., "UTF-8, a transformation format of ISO
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   [ABNF]   Crocker, D. and P. Overell, "Augmented BNF for Syntax
                  Specifications: ABNF", RFC 4234, October 2005.

   [Roadmap]   Zeilenga, K. (editor), "LDAP: Technical Specification

                    Road Map", draft-ietf-ldapbis-roadmap-xx.txt, a work in
                    progress.

   [AuthMeth]   Harrison, R. (editor), "LDAP: Authentication Methods and
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   [Models]   Zeilenga, K. (editor), "LDAP: Directory Information
                    Models", draft-ietf-ldapbis-models-xx.txt, a work in
                    progress.

   [Protocol]   Sermersheim, J. (editor), "LDAP: The Protocol",
                    draft-ietf-ldapbis-protocol-xx.txt, a work in progress.

   [LDAPURL]   Smith, M. (editor), "LDAP: Uniform Resource Locator",
                    draft-ietf-ldapbis-url-xx.txt, a work in progress.

   [Unicode]   The Unicode Consortium, "The Unicode Standard, Version
                    3.2.0" is defined by "The Unicode Standard, Version 3.0"
                    (Reading, MA, Addison-Wesley, 2000. ISBN 0-201-61633-5),
                    as amended by the "Unicode Standard Annex #27: Unicode
                    3.1" (http://www.unicode.org/reports/tr27/) and by the
                    "Unicode Standard Annex #28: Unicode 3.2"
                    (http://www.unicode.org/reports/tr28/).

   [X.680]   International Telecommunication Union -
                    Telecommunication Standardization Sector, "Abstract
                    Syntax Notation One (ASN.1) - Specification of Basic
                    Notation", X.680(2002) (also ISO/IEC 8824-1:2002).

9.2. Informative References

   [RFC1779]   Kille, S., "A String Representation of Distinguished
                    Names", RFC 1779, March 1995.

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

   [Syntaxes]   Legg, S. (editor), "LDAP: Syntaxes and Matching Rules",
                    draft-ietf-ldapbis-syntaxes-xx.txt, a work in progress.

   [LDAPDN]   Zeilenga, K. (editor), "LDAP: String Representation of
                    Distinguished Names", draft-ietf-ldapbis-dn-xx.txt, a
                    work in progress.

   [SASL]   Melnikov, A. (Editor), "Simple Authentication and

                    Security Layer (SASL)",
                    draft-ietf-sasl-rfc2222bis-xx.txt, a work in progress.

   [IANADSN]   IANA, "Directory Systems Names",
                   http://www.iana.org/assignments/directory-system-names.

Appendix A. Registration Templates

   This appendix provides registration templates for registering new
   LDAP values. Note that more than one value may be requested by
   extending the template by listing multiple values, or through use of
   tables.

A.1. LDAP Object Identifier Registration Template

   Subject: Request for LDAP OID Registration

   Person & email address to contact for further information:

   Specification: (I-D)

   Author/Change Controller:

   Comments:

   (Any comments that the requester deems relevant to the request)

A.2. LDAP Protocol Mechanism Registration Template

   Subject: Request for LDAP Protocol Mechanism Registration

   Object Identifier:

   Description:

   Person & email address to contact for further information:

   Usage: (One of Control or Extension or Feature or other)

   Specification: (RFC, I-D, URI)

   Author/Change Controller:

   Comments:

(Any comments that the requester deems relevant to the request)

A.3. **LDAP Syntax Registration Template**

   Subject: Request for LDAP Syntax Registration

   Object Identifier:

   Description:

   Person & email address to contact for further information:

   Specification: (RFC, I-D, URI)

   Author/Change Controller:

   Comments:

   (Any comments that the requester deems relevant to the request)

A.4. **LDAP Descriptor Registration Template**

   Subject: Request for LDAP Descriptor Registration

   Descriptor (short name):

   Object Identifier:

   Person & email address to contact for further information:

   Usage: (One of administrative role, attribute type, matching rule,
     name form, object class, URL extension, or other)

   Specification: (RFC, I-D, URI)

   Author/Change Controller:

   Comments:

   (Any comments that the requester deems relevant to the request)

A.5. **LDAP Attribute Description Option Registration Template**

   Subject: Request for LDAP Attribute Description Option Registration

    Option Name:

    Family of Options: (YES or NO)

    Person & email address to contact for further information:

    Specification: (RFC, I-D, URI)

    Author/Change Controller:

    Comments:

    (Any comments that the requester deems relevant to the request)

A.6. LDAP Message Type Registration Template

    Subject: Request for LDAP Message Type Registration

    LDAP Message Name:

    Person & email address to contact for further information:

    Specification: (Approved I-D)

    Comments:

    (Any comments that the requester deems relevant to the request)

A.7. LDAP Authentication Method Registration Template

    Subject: Request for LDAP Authentication Method Registration

    Authentication Method Name:

    Person & email address to contact for further information:

    Specification: (RFC, I-D, URI)

    Intended Usage: (One of COMMON, LIMITED-USE, OBSOLETE)

    Author/Change Controller:

    Comments:

    (Any comments that the requester deems relevant to the request)

A.8. LDAP Result Code Registration Template

    Subject: Request for LDAP Result Code Registration

    Result Code Name:

    Person & email address to contact for further information:

    Specification: (RFC, I-D, URI)

    Author/Change Controller:

    Comments:

    (Any comments that the requester deems relevant to the request)

A.8. LDAP Search Scope Registration Template

    Subject: Request for LDAP Search Scope Registration

    Search Scope Name:

    Filter Scope String:

    Person & email address to contact for further information:

    Specification: (RFC, I-D, URI)

    Author/Change Controller:

    Comments:

    (Any comments that the requester deems relevant to the request)

A.9. LDAP Filter Choice Registration Template

    Subject: Request for LDAP Filter Choice Registration

    Filter Choice Name:

    Person & email address to contact for further information:

    Specification: (RFC, I-D, URI)

    Author/Change Controller:

Comments:

(Any comments that the requester deems relevant to the request)

A.10. **LDAP ModifyRequest Operation Registration Template**

Subject: Request for LDAP ModifyRequest Operation Registration

ModifyRequest Operation Name:

Person & email address to contact for further information:

Specification: (RFC, I-D, URI)

Author/Change Controller:

Comments:

(Any comments that the requester deems relevant to the request)

Appendix B. **Changes since RFC 3383**

This informative appendix provides a summary of changes made since RFC 3383.

   - Object Identifier Descriptors practices were updated to require
     all descriptors defined in RFCs to be registered and
     recommending all other descriptors (excepting those in
     private-use name space) be registered. Additionally, all
     requests for multiple registrations of the same descriptor are
     now subject to Expert Review.

   - Protocol Mechanisms practices were updated to include values of
     the 'supportedFeatures' attribute type.

   - LDAP Syntax, Search Scope, Filter Choice, ModifyRequest
     operation, and authzId prefixes registries were added.
     [[Initial values provided in Appendix C. This Appendix is to be
     removed by the RFC Editor before publication as an RFC.]]

   - References to RFCs comprising the LDAP technical specifications
     have been updated to latest revisions.

   - References to ISO 10646 have been replaced with [Unicode].

   - The "Assigned Values" appendix providing initial registry values

         was removed.

      - Numerous editorial changes were made.

Appendix C. Initial Values for new registries

   This appendix provides initial values for new registries.

C.1. LDAP Syntaxes

   Object Identifier   Syntax   Owner Reference
   ----------------------------   -------------------------   ----- ---------
   1.3.6.1.4.1.1466.115.121.1.3   Attribute Type Description IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.6   Bit String   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.7   Boolean   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.11 Country String   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.12 DN   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.14 Delivery Method   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.15 Directory String   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.16 DIT Content Rule Description IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.17 DIT Structure Rule Description IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.21 Enhanced Guide   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.22 Facsimile Telephone Number IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.23 Fax   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.24 Generalized Time   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.25 Guide   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.26 IA5 String   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.27 Integer   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.28 JPEG   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.30 Matching Rule Description   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.31 Matching Rule Use Description IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.34 Name And Optional UID   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.35 Name Form Description   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.36 Numeric String   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.37 Object Class Description   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.38 OID   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.39 Other Mailbox   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.40 Octet String   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.41 Postal Address   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.44 Printable String   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.50 Telephone Number   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.51 Teletex Terminal Identifier IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.52 Telex Number   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.53 UTC Time   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.54 LDAP Syntax Description   IESG [Syntaxes]
   1.3.6.1.4.1.1466.115.121.1.58 Substring Assertion   IESG [Syntaxes]

C.2. LDAP Search Scopes

```
  Name                URLString Value   Owner Reference
  ----------------    --------- -----   ----- ------------------
  baseObject          base          0   IESG [Protocol][LDAPURL]
  singleLevel         one           1   IESG [Protocol][LDAPURL]
  wholeSubtree        sub           2   IESG [Protocol][LDAPURL]
```


C.3. LDAP Filter Choices

```
  Name                Value   Owner Reference
  ----------------    -----   ----- ---------
  and                     0   IESG [Protocol]
  or                      1   IESG [Protocol]
  not                     2   IESG [Protocol]
  equalityMatch           3   IESG [Protocol]
  substrings              4   IESG [Protocol]
  greaterOrEqual          5   IESG [Protocol]
  lessOrEqual             6   IESG [Protocol]
  present                 7   IESG [Protocol]
  approxMatch             8   IESG [Protocol]
  extensibleMatch         9   IESG [Protocol]
```


C.4. LDAP ModifyRequest Operations

```
  Name                Value   Owner Reference
  ----------------    -----   ----- ---------
  add                     0   IESG [Protocol]
  delete                  1   IESG [Protocol]
  replace                 2   IESG [Protocol]
```


C.5. LDAP authzId prefixes

```
  Name                Prefix  Owner Reference
  ----------------    ------  ----- ---------
  dnAuthzId           dn:     IESG  [AuthMeth]
  uAuthzId            u:      IESG  [AuthMeth]
```


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