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eldap

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**September 6, 2021**

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# 1 Eldap User's Guide

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The *Eldap* application provides an api for accessing an LDAP server.

The original code was developed by Torbjörn Törnkvist.

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## 2 Reference Manual

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## eldap

Erlang module

This module provides a client api to the Lightweight Directory Access Protocol (LDAP).

References:

- RFC 4510 - RFC 4519
- RFC 2830

The above publications can be found at **IETF**.

*Types*

```
handle()      Connection handle
attribute() {Type = string(), Values=[string()]}
modify_op() See mod_add/2, mod_delete/2, mod_replace/2
scope()      See baseObject/0, singleLevel/0, wholeSubtree/0
dereference() See neverDerefAliases/0, derefInSearching/0, derefFindingBaseObj/0, derefAlways/0
filter()      See present/1, substrings/2,
               equalityMatch/2, greaterOrEqual/2, lessOrEqual/2,
               approxMatch/2,
               'and'/1, 'or'/1, 'not'/1.
```

## Exports

**open([Host]) -> {ok, Handle} | {error, Reason}**

Types:

**Handle = handle()**

Setup a connection to an LDAP server, the HOST's are tried in order.

**open([Host], [Option]) -> {ok, Handle} | {error, Reason}**

Types:

**Handle = handle()**

**Option = {port, integer()} | {log, function()} | {timeout, integer()} |  
{ssl, boolean()} | {sslopts, list()}**

Setup a connection to an LDAP server, the HOST's are tried in order.

The log function takes three arguments, fun(Level, FormatString, [FormatArg]) end.

Timeout set the maximum time in milliseconds that each server request may take.

**close(Handle) -> ok**

Types:

**Handle = handle()**

Shutdown the connection.

```
start_tls(Handle, Options) -> ok | {error,Error}
```

Same as `start_tls(Handle, Options, infinity)`

```
start_tls(Handle, Options, Timeout) -> ok | {error,Error}
```

Types:

```
Handle = handle()  
Options = ssl:ssl_options()  
Timeout = infinity | positive_integer()
```

Upgrade the connection associated with `Handle` to a `tls` connection if possible.

The upgrade is done in two phases: first the server is asked for permission to upgrade. Second, if the request is acknowledged, the upgrade is performed.

Error responses from phase one will not affect the current encryption state of the connection. Those responses are:

`tls_already_started`

The connection is already encrypted. The connection is not affected.

`{response, ResponseFromServer}`

The upgrade was refused by the LDAP server. The `ResponseFromServer` is an atom delivered by the LDAP server explained in section 2.3 of rfc 2830. The connection is not affected, so it is still un-encrypted.

Errors in the seconde phase will however end the connection:

Error

Any error responded from `ssl:connect/3`

```
simple_bind(Handle, Dn, Password) -> ok | {error, Reason}
```

Types:

```
Handle = handle()  
Dn = string()  
Password = string()
```

Authenticate the connection using simple authentication.

```
add(Handle, Dn, [Attribute]) -> ok | {error, Reason}
```

Types:

```
Handle = handle()  
Dn = string()  
Attribute = attribute()
```

Add an entry. The entry must not exist.

```
add(Handle,  
    "cn=Bill Valentine, ou=people, o=Example Org, dc=example, dc=com",  
    [{ "objectclass", [ "person" ] },  
      { "cn", [ "Bill Valentine" ] },  
      { "sn", [ "Valentine" ] },  
      { "telephoneNumber", [ "545 555 00" ] } ]  
    )
```

```
delete(Handle, Dn) -> ok | {error, Reason}
```

Types:

```
Dn = string()
```

Delete an entry.

```
delete(Handle, "cn=Bill Valentine, ou=people, o=Example Org, dc=example, dc=com")
```

```
mod_add(Type, [Value]) -> modify_op()
```

Types:

```
Type = string()
```

```
Value = string()
```

Create an add modification operation.

```
mod_delete(Type, [Value]) -> modify_op()
```

Types:

```
Type = string()
```

```
Value = string()
```

Create a delete modification operation.

```
mod_replace(Type, [Value]) -> modify_op()
```

Types:

```
Type = string()
```

```
Value = string()
```

Create a replace modification operation.

```
modify(Handle, Dn, [ModifyOp]) -> ok | {error, Reason}
```

Types:

```
Dn = string()
```

```
ModifyOp = modify_op()
```

Modify an entry.

```
modify(Handle, "cn=Bill Valentine, ou=people, o=Example Org, dc=example, dc=com",
  [eldap:mod_replace("telephoneNumber", ["555 555 00"]),
   eldap:mod_add("description", ["LDAP Hacker"]) ])
```

```
modify_dn(Handle, Dn, NewRDN, DeleteOldRDN, NewSupDN) -> ok | {error, Reason}
```

Types:

```
Dn = string()
```

```
NewRDN = string()
```

```
DeleteOldRDN = boolean()
```

**NewSupDN = string()**

Modify the DN of an entry. DeleteOldRDN indicates whether the current RDN should be removed after operation. NewSupDN should be "" if the RDN should not be moved or the new parent which the RDN will be moved to.

```
modify_dn(Handle, "cn=Bill Valentine, ou=people, o=Example Org, dc=example, dc=com ",
          "cn=Bill Jr Valentine", true, "")
```

**search(Handle, SearchOptions) -> {ok, #eldap\_search\_result{}} | {error, Reason}**

Types:

```
SearchOptions = #eldap_search{} | [SearchOption]
SearchOption = {base, string()} | {filter, filter()} | {scope, scope()}
              | {attributes, [string()]} | {deref, dereference()} | | {types_only,
boolean()} | {timeout, integer()}
```

Search the directory with the supplied the SearchOptions. The base and filter options must be supplied. Default values: scope is wholeSubtree(), deref is derefAlways(), types\_only is false and timeout is 0 (meaning infinity).

```
Filter = eldap:substrings("cn", [{any,"V"}]),
search(Handle, [{base, "dc=example, dc=com"}, {filter, Filter}, {attributes, ["cn"]}]),
```

**baseObject() -> scope()**

Search baseobject only.

**singleLevel() -> scope()**

Search the specified level only, i.e. do not recurse.

**wholeSubtree() -> scope()**

Search the entire subtree.

**neverDerefAliases() -> dereference()**

Never derefence aliases, treat aliases as entries.

**derefAlways() -> dereference()**

Always derefence aliases.

**derefInSearching() -> dereference()**

Derefence aliases only when searching.

**derefFindingBaseObj() -> dereference()**

Derefence aliases only in finding the base.



```
present(Type) -> filter()
```

Types:

```
    Type = string()
```

Create a filter which filters on attribute type presence.

```
substrings(Type, [SubString]) -> filter()
```

Types:

```
    Type = string()
```

```
    SubString = {StringPart, string()}
```

```
    StringPart = initial | any | final
```

Create a filter which filters on substrings.

```
equalityMatch(Type, Value) -> filter()
```

Types:

```
    Type = string()
```

```
    Value = string()
```

Create a equality filter.

```
greaterOrEqual(Type, Value) -> filter()
```

Types:

```
    Type = string()
```

```
    Value = string()
```

Create a greater or equal filter.

```
lessOrEqual(Type, Value) -> filter()
```

Types:

```
    Type = string()
```

```
    Value = string()
```

Create a less or equal filter.

```
approxMatch(Type, Value) -> filter()
```

Types:

```
    Type = string()
```

```
    Value = string()
```

Create a approximation match filter.

```
'and'([Filter]) -> filter()
```

Types:

```
    Filter = filter()
```

Creates a filter where all Filter must be true.

```
'or'([Filter]) -> filter()
```

Types:

```
Filter = filter()
```

Create a filter where at least one of the `Filter` must be true.

```
'not'(Filter) -> filter()
```

Types:

```
Filter = filter()
```

Negate a filter.