



eldap

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1 Eldap User's Guide

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

The original code was developed by Torbjörn Törnkvist.

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**.

DATA TYPES

Type definitions that are used more than once in this module:

`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`, `extensibleMatch/2`, `'and'/1`, `'or'/1`, `'not'/1`

`return_value() =`

`ok | {ok, {referral, referrals()}} | {error, Error}`

`referrals() =`

`[Address = string()]` The contents of Address is server dependent.

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()} | {tcptpts, 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.

All TCP socket options are accepted except `active`, `binary`, `deliver`, `list`, `mode` and `packet`

```
close(Handle) -> ok
```

Types:

```
Handle = handle()
```

Shutdown the connection after sending an `unbindRequest` to the server. If the connection is `tls` the connection will be closed with `ssl:close/1`, otherwise with `gen_tcp:close/1`.

```
start_tls(Handle, Options) -> return_value()
```

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

```
start_tls(Handle, Options, Timeout) -> return_value()
```

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 to `tls` 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 second phase will however end the connection:

```
Error
```

Any error responded from `ssl:connect/3`

The `Timeout` parameter is for the actual `tls` upgrade (phase 2) while the timeout in `eldap:open/2` is used for the initial negotiation about upgrade (phase 1).

```
simple_bind(Handle, Dn, Password) -> return_value()
```

Types:

```
Handle = handle()
```

```
Dn = string()
```

```
Password = string()
```

Authenticate the connection using simple authentication.

add(Handle, Dn, [Attribute]) -> return_value()

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) -> return_value()

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]) -> return_value()

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_password(Handle, Dn, NewPasswd) -> return_value() | {ok, GenPasswd}
```

Types:

```
Dn = string()
NewPasswd = string()
```

Modify the password of a user. See *modify_password/4*.

```
modify_password(Handle, Dn, NewPasswd, OldPasswd) -> return_value() | {ok, GenPasswd}
```

Types:

```
Dn = string()
NewPasswd = string()
OldPasswd = string()
GenPasswd = string()
```

Modify the password of a user.

- **Dn**. The user to modify. Should be "" if the modify request is for the user of the LDAP session.
- **NewPasswd**. The new password to set. Should be "" if the server is to generate the password. In this case, the result will be {ok, GenPasswd}.
- **OldPasswd**. Sometimes required by server policy for a user to change their password. If not required, use *modify_password/3*.

```
modify_dn(Handle, Dn, NewRDN, DeleteOldRDN, NewSupDN) -> return_value()
```

Types:

```
Dn = string()
NewRDN = string()
DeleteOldRDN = boolean()
NewSupDN = string()
```

Modify the DN of an entry. **DeleteOldRDN** indicates whether the current RDN should be removed from the attribute list after the after operation. **NewSupDN** is the new parent that the RDN shall be moved to. If the old parent should remain as parent, **NewSupDN** shall be "".

```
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{}} | {ok, {referral, referrals()}} | {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"]}]),
```

The timeout option in the SearchOptions is for the ldap server, while the timeout in `eldap:open/2` is used for each individual request in the search operation.

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 derefrence aliases, treat aliases as entries.

derefAlways() -> dereference()

Always derefrence aliases.

derefInSearching() -> dereference()

Derefrence aliases only when searching.

derefFindingBaseObj() -> dereference()

Derefrence 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.

extensibleMatch(MatchValue, OptionalAttrs) -> filter()

Types:

```
    MatchValue = string()
    OptionalAttrs = [Attr]
    Attr = {matchingRule,string()} | {type,string()} |
           {dnAttributes,boolean()}
```

Creates an extensible match filter. For example,

```
eldap:extensibleMatch("Bar", [{type,"sn"}, {matchingRule,"caseExactMatch"}]))
```

creates a filter which performs a `caseExactMatch` on the attribute `sn` and matches with the value `"Bar"`. The default value of `dnAttributes` is `false`.

'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.