



eldap

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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

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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, extensibleMatch/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()} | {tcpopts, 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.

```
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 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 `erl_tar:open/2` is used for the initial negotiation about upgrade (phase 1).

```
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 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{}} | {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 `erl_tar: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 dereference aliases, treat aliases as entries.

```

derefAlways() -> dereference()

```

Always dereference aliases.

`derefInSearching() -> dereference()`

Dereference aliases only when searching.

`derefFindingBaseObj() -> dereference()`

Dereference 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.