

# LDAP\_Types(3)

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LDAP\_Types(3)    Library Functions Manual    LDAP\_Types(3)

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## NAME

ber\_int\_t, ber\_uint\_t, ber\_len\_t, ber\_slen\_t, ber\_tag\_t, struct berval, BerValue, BerVarray, BerElement, ber\_bvfree, ber\_bvecfree, ber\_bvecadd, ber\_bvarray\_free, ber\_bvarray\_add, ber\_bvdup, ber\_dupbv, ber\_bvstr, ber\_bvstrdup, ber\_str2bv, ber\_alloc\_t, ber\_init, ber\_init2, ber\_free - OpenLDAP LDAP types and allocation functions

## LIBRARY

OpenLDAP LDAP (libldap, -lldap)

## SYNOPSIS

**#include <ldap.h>**

```
typedef impl_tag_t ber_tag_t;
typedef impl_int_t ber_int_t;
typedef impl_uint_t ber_uint_t;
typedef impl_len_t ber_len_t;
typedef impl_slen_t ber_slen_t;

typedef struct berval {
    ber_len_t bv_len;
    char *bv_val;
} BerValue, *BerVarray;

typedef struct berelement BerElement;
```

```

void ber_bvfree(struct berval *bv);
void ber_bvecfree(struct berval **bvec);
void ber_bvecadd(struct berval ***bvec, struct berval *bv);
void ber_bvarray_free(struct berval *bvarray);
void ber_bvarray_add(BerVarray *bvarray, BerValue *bv);
struct berval *ber_bvdup(const struct berval *bv);
struct berval *ber_dupbv(const struct berval *dst, struct berval *src);
struct berval *ber_bvstr(const char *str);
struct berval *ber_bvstrdup(const char *str);
struct berval *ber_str2bv(const char *str, ber_len_t len, int dup,
struct berval *bv);
BerElement *ber_alloc_t(int options);
BerElement *ber_init(struct berval *bv);
void ber_init2(BerElement *ber, struct berval *bv, int options);
void ber_free(BerElement *ber, int freebuf);

```

## DESCRIPTION

The following are the basic types and structures defined for use with the Lightweight BER library.

**ber\_int\_t** is a signed integer of at least 32 bits. It is commonly equivalent to **int**. **ber\_uint\_t** is the unsigned variant of **ber\_int\_t**.

**ber\_len\_t** is an unsigned integer of at least 32 bits used to represent a length. It is commonly equivalent to a **size\_t**. **ber\_slen\_t** is the signed variant to **ber\_len\_t**.

**ber\_tag\_t** is an unsigned integer of at least 32 bits used to represent a BER tag. It is commonly equivalent to a **unsigned long**.

The actual definitions of the integral **impl\_TYPE\_t** types are platform specific.

**BerValue**, commonly used as **struct berval**, is used to hold an arbitrary sequence of octets. **bv\_val** points to **bv\_len** octets. **bv\_val** is not necessarily terminated by a NULL (zero) octet. **ber\_bvfree()** frees a BerValue, pointed to by **bv**, returned from this API. If **bv** is NULL, the routine does nothing.

**ber\_bvecfree()** frees an array of BerValues (and the array), pointed to by **bvec**, returned from this API. If **bvec** is NULL, the routine does nothing.

**ber\_bvecadd()** appends the bv pointer to the bvec array. Space for the array is allocated as needed. The end of the array is marked by a NULL pointer.

**ber\_bvarray\_free()** frees an array of BerValues (and the array), pointed to by bvarray, returned from this API. If bvarray is NULL, the routine does nothing. **ber\_bvarray\_add()** appends the contents of the BerValue pointed to by bv to the bvarray array. Space for the new element is allocated as needed. The end of the array is marked by a BerValue with a NULL bv\_val field.

**ber\_bvdup()** returns a copy of a BerValue. The routine returns NULL upon error (e.g. out of memory). The caller should use **ber\_bvfree()** to deallocate the resulting BerValue. **ber\_dupbv()** copies a BerValue from src to dst. If dst is NULL a new BerValue will be allocated to hold the copy. The routine returns NULL upon error, otherwise it returns a pointer to the copy. If dst is NULL the caller should use **ber\_bvfree()** to deallocate the resulting BerValue, otherwise **ber\_memfree()** should be used to deallocate the dst->bv\_val. (The **ber\_bvdup()** function is internally implemented as **ber\_dupbv(NULL, bv)**. **ber\_bvdup()** is provided only for compatibility with an expired draft of the LDAP C API; **ber\_dupbv()** is the preferred interface.)

**ber\_bvstr()** returns a BerValue containing the string pointed to by str. **ber\_bvstrdup()** returns a BerValue containing a copy of the string pointed to by str. **ber\_str2bv()** returns a BerValue containing the string pointed to by str, whose length may be optionally specified in len. If dup is non-zero, the BerValue will contain a copy of str. If len is zero, the number of bytes to copy will be determined by **strlen(3)**, otherwise len bytes will be copied. If bv is non-NULL, the result will be stored in the given BerValue, otherwise a new BerValue will be allocated to store the result. NOTE: Both **ber\_bvstr()** and **ber\_bvstrdup()** are implemented as macros using **ber\_str2bv()** in this version of the library.

**BerElement** is an opaque structure used to maintain state information used in encoding and decoding. **ber\_alloc\_t()** is used to create an empty BerElement structure. If **LBER\_USE\_DER** is specified for the options parameter then data lengths for data written to the BerElement will be encoded in the minimal number of octets required, otherwise they will always be written as four byte values. **ber\_init()** creates a BerElement structure that is initialized with a copy of the data in its bv parameter. **ber\_init2()** initializes an existing BerElement ber using the data in the bv parameter. The data is referenced directly, not copied. The options parameter is the same as for **ber\_alloc\_t()**. **ber\_free()** frees a BerElement pointed to by ber. If ber is NULL, the routine does nothing. If freebuf is zero, the internal buffer is not freed.

## SEE ALSO

**lber-encode(3)**, **lber-decode(3)**, **lber-memory(3)**

## ACKNOWLEDGEMENTS

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