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## **Red Hat Enterprise Linux Release 9.2 Manual Pages on 'BN\_bn2hex.3oss1' command**

**\$ man BN\_bn2hex.3oss1**

BN\_BN2BIN(3oss1)            OpenSSL            BN\_BN2BIN(3oss1)

### NAME

BN\_bn2binpad, BN\_bn2bin, BN\_bin2bn, BN\_bn2lebinpad, BN\_lebin2bn,  
BN\_bn2nativepad, BN\_native2bn, BN\_bn2hex, BN\_bn2dec, BN\_hex2bn,  
BN\_dec2bn, BN\_print, BN\_print\_fp, BN\_bn2mpi, BN\_mpi2bn - format  
conversions

### SYNOPSIS

```
#include <openssl/bn.h>

int BN_bn2bin(const BIGNUM *a, unsigned char *to);

int BN_bn2binpad(const BIGNUM *a, unsigned char *to, int tolen);

BIGNUM *BN_bin2bn(const unsigned char *s, int len, BIGNUM *ret);

int BN_bn2lebinpad(const BIGNUM *a, unsigned char *to, int tolen);

BIGNUM *BN_lebin2bn(const unsigned char *s, int len, BIGNUM *ret);

int BN_bn2nativepad(const BIGNUM *a, unsigned char *to, int tolen);

BIGNUM *BN_native2bn(const unsigned char *s, int len, BIGNUM *ret);

char *BN_bn2hex(const BIGNUM *a);

char *BN_bn2dec(const BIGNUM *a);

int BN_hex2bn(BIGNUM **a, const char *str);

int BN_dec2bn(BIGNUM **a, const char *str);

int BN_print(BIO *fp, const BIGNUM *a);

int BN_print_fp(FILE *fp, const BIGNUM *a);

int BN_bn2mpi(const BIGNUM *a, unsigned char *to);

BIGNUM *BN_mpi2bn(unsigned char *s, int len, BIGNUM *ret);
```

## DESCRIPTION

`BN_bn2bin()` converts the absolute value of `a` into big-endian form and stores it at `to`. `to` must point to `BN_num_bytes(a)` bytes of memory.

`BN_bn2binpad()` also converts the absolute value of `a` into big-endian form and stores it at `to`. `toLen` indicates the length of the output buffer `to`. The result is padded with zeros if necessary. If `toLen` is less than `BN_num_bytes(a)` an error is returned.

`BN_bin2bn()` converts the positive integer in big-endian form of length `len` at `s` into a `BIGNUM` and places it in `ret`. If `ret` is `NULL`, a new `BIGNUM` is created.

`BN_bn2lebinpad()` and `BN_lebin2bn()` are identical to `BN_bn2binpad()` and `BN_bin2bn()` except the buffer is in little-endian format.

`BN_bn2nativepad()` and `BN_native2bn()` are identical to `BN_bn2binpad()` and `BN_bin2bn()` except the buffer is in native format, i.e. most significant byte first on big-endian platforms, and least significant byte first on little-endian platforms.

`BN_bn2hex()` and `BN_bn2dec()` return printable strings containing the hexadecimal and decimal encoding of `a` respectively. For negative numbers, the string is prefaced with a leading '-'. The string must be freed later using `OPENSSL_free()`.

`BN_hex2bn()` takes as many characters as possible from the string `str`, including the leading character '-' which means negative, to form a valid hexadecimal number representation and converts them to a `BIGNUM` and stores it in `**a`. If `*a` is `NULL`, a new `BIGNUM` is created. If `a` is `NULL`, it only computes the length of valid representation. A "negative zero" is converted to zero. `BN_dec2bn()` is the same using the decimal system.

`BN_print()` and `BN_print_fp()` write the hexadecimal encoding of `a`, with a leading '-' for negative numbers, to the `BIO` or `FILE` `fp`.

`BN_bn2mpi()` and `BN_mpi2bn()` convert `BIGNUM`s from and to a format that consists of the number's length in bytes represented as a 4-byte big-endian number, and the number itself in big-endian format, where the most significant bit signals a negative number (the representation of

numbers with the MSB set is prefixed with null byte).

`BN_bn2mpi()` stores the representation of `a` at `to`, where `to` must be large enough to hold the result. The size can be determined by calling `BN_bn2mpi(a, NULL)`.

`BN_mpi2bn()` converts the `len` bytes long representation at `s` to a `BIGNUM` and stores it at `ret`, or in a newly allocated `BIGNUM` if `ret` is `NULL`.

## RETURN VALUES

`BN_bn2bin()` returns the length of the big-endian number placed at `to`.

`BN_bin2bn()` returns the `BIGNUM`, `NULL` on error.

`BN_bn2binpad()`, `BN_bn2lebinpad()`, and `BN_bn2nativepad()` return the number of bytes written or `-1` if the supplied buffer is too small.

`BN_bn2hex()` and `BN_bn2dec()` return a NUL-terminated string, or `NULL` on error. `BN_hex2bn()` and `BN_dec2bn()` return the number of characters used in parsing, or `0` on error, in which case no new `BIGNUM` will be created.

`BN_print_fp()` and `BN_print()` return `1` on success, `0` on write errors.

`BN_bn2mpi()` returns the length of the representation. `BN_mpi2bn()` returns the `BIGNUM`, and `NULL` on error.

The error codes can be obtained by `ERR_get_error(3)`.

## SEE ALSO

`ERR_get_error(3)`, `BN_zero(3)`, `ASN1_INTEGER_to_BN(3)`, `BN_num_bytes(3)`

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