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Red Hat Enterprise Linux Release 9.2 Manual Pages on 'BN_lshift.3ossl' command

\$ man BN_lshift.3ossl

BN_SET_BIT(3ossl) OpenSSL BN_SET_BIT(3ossl)

NAME

BN_set_bit, BN_clear_bit, BN_is_bit_set, BN_mask_bits, BN_lshift,
BN_lshift1, BN_rshift, BN_rshift1 - bit operations on BIGNUMs

SYNOPSIS

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

```
int BN_set_bit(BIGNUM *a, int n);
```

```
int BN_clear_bit(BIGNUM *a, int n);
```

```
int BN_is_bit_set(const BIGNUM *a, int n);
```

```
int BN_mask_bits(BIGNUM *a, int n);
```

```
int BN_lshift(BIGNUM *r, const BIGNUM *a, int n);
```

```
int BN_lshift1(BIGNUM *r, BIGNUM *a);
```

```
int BN_rshift(BIGNUM *r, BIGNUM *a, int n);
```

```
int BN_rshift1(BIGNUM *r, BIGNUM *a);
```

DESCRIPTION

`BN_set_bit()` sets bit n in a to 1 (" $a|=(1<<n)$ "). The number is expanded if necessary.

`BN_clear_bit()` sets bit n in a to 0 (" $a&=~(1<<n)$ "). An error occurs if a is shorter than n bits.

`BN_is_bit_set()` tests if bit n in a is set.

`BN_mask_bits()` truncates a to an n bit number (" $a&=~((~0)<<n)$ "). An error occurs if a already is shorter than n bits.

`BN_lshift()` shifts a left by n bits and places the result in r (" $r=a*2^n$ "). Note that n must be nonnegative. `BN_lshift1()` shifts a left by one and places the result in r (" $r=2*a$ ").

`BN_rshift()` shifts a right by n bits and places the result in r (" $r=a/2^n$ "). Note that n must be nonnegative. `BN_rshift1()` shifts a right by one and places the result in r (" $r=a/2$ ").

For the shift functions, r and a may be the same variable.

RETURN VALUES

`BN_is_bit_set()` returns 1 if the bit is set, 0 otherwise.

All other functions return 1 for success, 0 on error. The error codes can be obtained by `ERR_get_error(3)`.

SEE ALSO

`BN_num_bytes(3)`, `BN_add(3)`

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3.0.7

2023-07-13

BN_SET_BIT(3oss)