



*Full credit is given to the above companies including the OS that this PDF file was generated!*

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

***\$ man BN\_rshift.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)`

## COPYRIGHT

Copyright 2000-2020 The OpenSSL Project Authors. All Rights Reserved.

Licensed under the Apache License 2.0 (the "License"). You may not use this file except in compliance with the License. You can obtain a copy in the file LICENSE in the source distribution or at <https://www.openssl.org/source/license.html>.

3.0.7

2023-07-13

BN\_SET\_BIT(3oss)