

**NAME**

BN\_CTX\_new, BN\_CTX\_init, BN\_CTX\_free - allocate and free BN\_CTX structures

**SYNOPSIS**

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

BN_CTX *BN_CTX_new(void);

void BN_CTX_free(BN_CTX *c);

Deprecated:

void BN_CTX_init(BN_CTX *c);
```

**DESCRIPTION**

A **BN\_CTX** is a structure that holds **BIGNUM** temporary variables used by library functions. Since dynamic memory allocation to create **BIGNUM**s is rather expensive when used in conjunction with repeated subroutine calls, the **BN\_CTX** structure is used.

*BN\_CTX\_new()* allocates and initializes a **BN\_CTX** structure.

*BN\_CTX\_free()* frees the components of the **BN\_CTX**, and if it was created by *BN\_CTX\_new()*, also the structure itself. If *BN\_CTX\_start(3)* has been used on the **BN\_CTX**, *BN\_CTX\_end(3)* must be called before the **BN\_CTX** may be freed by *BN\_CTX\_free()*.

*BN\_CTX\_init()* (deprecated) initializes an existing uninitialized **BN\_CTX**. This should not be used for new programs. Use *BN\_CTX\_new()* instead.

**RETURN VALUES**

*BN\_CTX\_new()* returns a pointer to the **BN\_CTX**. If the allocation fails, it returns **NULL** and sets an error code that can be obtained by *ERR\_get\_error(3)*.

*BN\_CTX\_init()* and *BN\_CTX\_free()* have no return values.

**SEE ALSO**

*bn(3)*, *ERR\_get\_error(3)*, *BN\_add(3)*, *BN\_CTX\_start(3)*

**HISTORY**

*BN\_CTX\_new()* and *BN\_CTX\_free()* are available in all versions on SSLeay and OpenSSL. *BN\_CTX\_init()* was added in SSLeay 0.9.1b.