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Red Hat Enterprise Linux Release 9.2 Manual Pages on 'BN_CTX_new.3oss1' command

\$ man BN_CTX_new.3oss1

BN_CTX_NEW(3oss1) OpenSSL BN_CTX_NEW(3oss1)

NAME

BN_CTX_new_ex, BN_CTX_new, BN_CTX_secure_new_ex, BN_CTX_secure_new,
BN_CTX_free - allocate and free BN_CTX structures

SYNOPSIS

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

```
BN_CTX *BN_CTX_new_ex(OSSL_LIB_CTX *ctx);
```

```
BN_CTX *BN_CTX_new(void);
```

```
BN_CTX *BN_CTX_secure_new_ex(OSSL_LIB_CTX *ctx);
```

```
BN_CTX *BN_CTX_secure_new(void);
```

```
void BN_CTX_free(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 BIGNUMs is rather expensive when used in conjunction with repeated subroutine calls, the BN_CTX structure is used.

`BN_CTX_new_ex()` allocates and initializes a `BN_CTX` structure for the given library context `ctx`. The `<ctx>` value may be `NULL` in which case the default library context will be used. `BN_CTX_new()` is the same as `BN_CTX_new_ex()` except that the default library context is always used.

`BN_CTX_secure_new_ex()` allocates and initializes a `BN_CTX` structure but uses the secure heap (see `CRYPTO_secure_malloc(3)`) to hold the `BIGNUMs` for the given library context `ctx`. The `<ctx>` value may be `NULL` in which case the default library context will be used. `BN_CTX_secure_new()` is the same as `BN_CTX_secure_new_ex()` except that the default library context is always used.

`BN_CTX_free()` frees the components of the `BN_CTX` and the structure itself. Since `BN_CTX_start()` is required in order to obtain `BIGNUMs` from the `BN_CTX`, in most cases `BN_CTX_end()` must be called before the `BN_CTX` may be freed by `BN_CTX_free()`. If `c` is `NULL`, nothing is done.

A given `BN_CTX` must only be used by a single thread of execution. No locking is performed, and the internal pool allocator will not properly handle multiple threads of execution.

RETURN VALUES

`BN_CTX_new()` and `BN_CTX_secure_new()` return a pointer to the `BN_CTX`.

If the allocation fails, they return `NULL` and sets an error code that can be obtained by `ERR_get_error(3)`.

`BN_CTX_free()` has no return values.

REMOVED FUNCTIONALITY

```
void BN_CTX_init(BN_CTX *c);
```

`BN_CTX_init()` is no longer available as of OpenSSL 1.1.0. Applications should replace use of `BN_CTX_init` with `BN_CTX_new` instead:

```
BN_CTX *ctx;
ctx = BN_CTX_new();
if (!ctx)
    /* error */
...
BN_CTX_free(ctx);
```

SEE ALSO

`ERR_get_error(3)`, `BN_add(3)`, `BN_CTX_start(3)`

HISTORY

`BN_CTX_init()` was removed in OpenSSL 1.1.0.

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