

**NAME**

BUF\_MEM\_new, BUF\_MEM\_new\_ex, BUF\_MEM\_free, BUF\_MEM\_grow,  
BUF\_MEM\_grow\_clean, BUF\_reverse - simple character array structure

**SYNOPSIS**

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

```
BUF_MEM *BUF_MEM_new(void);
```

```
BUF_MEM *BUF_MEM_new_ex(unsigned long flags);
```

```
void BUF_MEM_free(BUF_MEM *a);
```

```
int BUF_MEM_grow(BUF_MEM *str, int len);
```

```
size_t BUF_MEM_grow_clean(BUF_MEM *str, size_t len);
```

```
void BUF_reverse(unsigned char *out, const unsigned char *in, size_t size);
```

**DESCRIPTION**

The buffer library handles simple character arrays. Buffers are used for various purposes in the library, most notably memory BIOs.

**BUF\_MEM\_new()** allocates a new buffer of zero size.

**BUF\_MEM\_new\_ex()** allocates a buffer with the specified flags. The flag **BUF\_MEM\_FLAG\_SECURE** specifies that the **data** pointer should be allocated on the secure heap; see **CRYPTO\_secure\_malloc(3)**.

**BUF\_MEM\_free()** frees up an already existing buffer. The data is zeroed before freeing up in case the buffer contains sensitive data.

**BUF\_MEM\_grow()** changes the size of an already existing buffer to **len**. Any data already in the buffer is preserved if it increases in size.

**BUF\_MEM\_grow\_clean()** is similar to **BUF\_MEM\_grow()** but it sets any free'd or additionally-allocated memory to zero.

**BUF\_reverse()** reverses **size** bytes at **in** into **out**. If **in** is NULL, the array is reversed in-place.

**RETURN VALUES**

**BUF\_MEM\_new()** returns the buffer or NULL on error.

**BUF\_MEM\_free()** has no return value.

**BUF\_MEM\_grow()** and **BUF\_MEM\_grow\_clean()** return zero on error or the new size (i.e., **len**).

#### SEE ALSO

**bio(7)**, **CRYPTO\_secure\_malloc(3)**.

#### HISTORY

The **BUF\_MEM\_new\_ex()** function was added in OpenSSL 1.1.0.

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