

## NAME

BIO\_get\_buffer\_num\_lines, BIO\_set\_read\_buffer\_size, BIO\_set\_write\_buffer\_size, BIO\_set\_buffer\_size, BIO\_set\_buffer\_read\_data, BIO\_f\_buffer – buffering BIO

## SYNOPSIS

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

const BIO_METHOD *BIO_f_buffer(void);

long BIO_get_buffer_num_lines(BIO *b);
long BIO_set_read_buffer_size(BIO *b, long size);
long BIO_set_write_buffer_size(BIO *b, long size);
long BIO_set_buffer_size(BIO *b, long size);
long BIO_set_buffer_read_data(BIO *b, void *buf, long num);
```

## DESCRIPTION

**BIO\_f\_buffer()** returns the buffering BIO method.

Data written to a buffering BIO is buffered and periodically written to the next BIO in the chain. Data read from a buffering BIO comes from an internal buffer which is filled from the next BIO in the chain. Both **BIO\_gets()** and **BIO\_puts()** are supported.

Calling **BIO\_reset()** on a buffering BIO clears any buffered data.

**BIO\_get\_buffer\_num\_lines()** returns the number of lines currently buffered.

**BIO\_set\_read\_buffer\_size()**, **BIO\_set\_write\_buffer\_size()** and **BIO\_set\_buffer\_size()** set the read, write or both read and write buffer sizes to **size**. The initial buffer size is **DEFAULT\_BUFFER\_SIZE**, currently 4096. Any attempt to reduce the buffer size below **DEFAULT\_BUFFER\_SIZE** is ignored. Any buffered data is cleared when the buffer is resized.

**BIO\_set\_buffer\_read\_data()** clears the read buffer and fills it with **num** bytes of **buf**. If **num** is larger than the current buffer size the buffer is expanded.

## NOTES

These functions, other than **BIO\_f\_buffer()**, are implemented as macros.

Buffering BIOs implement **BIO\_read\_ex()** and **BIO\_gets()** by using **BIO\_read\_ex()** operations on the next BIO in the chain and storing the result in an internal buffer, from which bytes are given back to the caller as appropriate for the call; a **BIO\_gets()** is guaranteed to give the caller a whole line, and **BIO\_read\_ex()** is guaranteed to give the caller the number of bytes it asks for, unless there's an error or end of communication is reached in the next BIO. By prepending a buffering BIO to a chain it is therefore possible to provide **BIO\_gets()** or exact size **BIO\_read\_ex()** functionality if the following BIOs do not support it.

Do not add more than one **BIO\_f\_buffer()** to a BIO chain. The result of doing so will force a full read of the size of the internal buffer of the top **BIO\_f\_buffer()**, which is 4 KiB at a minimum.

Data is only written to the next BIO in the chain when the write buffer fills or when **BIO\_flush()** is called. It is therefore important to call **BIO\_flush()** whenever any pending data should be written such as when removing a buffering BIO using **BIO\_pop()**. **BIO\_flush()** may need to be retried if the ultimate source/sink BIO is non blocking.

## RETURN VALUES

**BIO\_f\_buffer()** returns the buffering BIO method.

**BIO\_get\_buffer\_num\_lines()** returns the number of lines buffered (may be 0) or a negative value in case of errors.

**BIO\_set\_read\_buffer\_size()**, **BIO\_set\_write\_buffer\_size()** and **BIO\_set\_buffer\_size()** return 1 if the buffer was successfully resized or  $\leq 0$  for failure.

**BIO\_set\_buffer\_read\_data()** returns 1 if the data was set correctly or  $\leq 0$  if there was an error.

**SEE ALSO**

**bio** (7), **BIO\_reset** (3), **BIO\_flush** (3), **BIO\_pop** (3), **BIO\_ctrl** (3).

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