

**NAME**

BIO\_s\_file, BIO\_new\_file, BIO\_new\_fp, BIO\_set\_fp, BIO\_get\_fp, BIO\_read\_filename, BIO\_write\_filename, BIO\_append\_filename, BIO\_rw\_filename - FILE bio

**SYNOPSIS**

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

```
const BIO_METHOD *BIO_s_file(void);
BIO *BIO_new_file(const char *filename, const char *mode);
BIO *BIO_new_fp(FILE *stream, int flags);
```

```
BIO_set_fp(BIO *b, FILE *fp, int flags);
BIO_get_fp(BIO *b, FILE **fpp);
```

```
int BIO_read_filename(BIO *b, char *name);
int BIO_write_filename(BIO *b, char *name);
int BIO_append_filename(BIO *b, char *name);
int BIO_rw_filename(BIO *b, char *name);
```

**DESCRIPTION**

**BIO\_s\_file()** returns the BIO file method. As its name implies it is a wrapper round the stdio FILE structure and it is a source/sink BIO.

Calls to **BIO\_read\_ex()** and **BIO\_write\_ex()** read and write data to the underlying stream. **BIO\_gets()** and **BIO\_puts()** are supported on file BIOs.

**BIO\_flush()** on a file BIO calls the **fflush()** function on the wrapped stream.

**BIO\_reset()** attempts to change the file pointer to the start of file using `fseek(stream, 0, 0)`.

**BIO\_seek()** sets the file pointer to position **ofs** from start of file using `fseek(stream, ofs, 0)`.

**BIO\_eof()** calls **feof()**.

Setting the BIO\_CLOSE flag calls **fclose()** on the stream when the BIO is freed.

**BIO\_new\_file()** creates a new file BIO with mode **mode** the meaning of **mode** is the same as the stdio function **fopen()**. The BIO\_CLOSE flag is set on the returned BIO.

**BIO\_new\_fp()** creates a file BIO wrapping **stream**. Flags can be: BIO\_CLOSE, BIO\_NOCLOSE (the

close flag) **BIO\_FP\_TEXT** (sets the underlying stream to text mode, default is binary: this only has any effect under Win32).

**BIO\_set\_fp()** sets the fp of a file BIO to **fp**. **flags** has the same meaning as in **BIO\_new\_fp()**, it is a macro.

**BIO\_get\_fp()** retrieves the fp of a file BIO, it is a macro.

**BIO\_seek()** is a macro that sets the position pointer to **offset** bytes from the start of file.

**BIO\_tell()** returns the value of the position pointer.

**BIO\_read\_filename()**, **BIO\_write\_filename()**, **BIO\_append\_filename()** and **BIO\_rw\_filename()** set the file BIO **b** to use file **name** for reading, writing, append or read write respectively.

## NOTES

When wrapping stdout, stdin or stderr the underlying stream should not normally be closed so the **BIO\_NOCLOSE** flag should be set.

Because the file BIO calls the underlying stdio functions any quirks in stdio behaviour will be mirrored by the corresponding BIO.

On Windows **BIO\_new\_files** reserves for the filename argument to be UTF-8 encoded. In other words if you have to make it work in multi-lingual environment, encode filenames in UTF-8.

## RETURN VALUES

**BIO\_s\_file()** returns the file BIO method.

**BIO\_new\_file()** and **BIO\_new\_fp()** return a file BIO or NULL if an error occurred.

**BIO\_set\_fp()** and **BIO\_get\_fp()** return 1 for success or  $\leq 0$  for failure (although the current implementation never return 0).

**BIO\_seek()** returns 0 for success or negative values for failure.

**BIO\_tell()** returns the current file position or negative values for failure.

**BIO\_read\_filename()**, **BIO\_write\_filename()**, **BIO\_append\_filename()** and **BIO\_rw\_filename()** return 1 for success or  $\leq 0$  for failure.

**EXAMPLES**

File BIO "hello world":

```
BIO *bio_out;

bio_out = BIO_new_fp(stdout, BIO_NOCLOSE);
BIO_printf(bio_out, "Hello World\n");
```

Alternative technique:

```
BIO *bio_out;

bio_out = BIO_new(BIO_s_file());
if (bio_out == NULL)
    /* Error */
if (BIO_set_fp(bio_out, stdout, BIO_NOCLOSE) <= 0)
    /* Error */
BIO_printf(bio_out, "Hello World\n");
```

Write to a file:

```
BIO *out;

out = BIO_new_file("filename.txt", "w");
if (!out)
    /* Error */
BIO_printf(out, "Hello World\n");
BIO_free(out);
```

Alternative technique:

```
BIO *out;

out = BIO_new(BIO_s_file());
if (out == NULL)
    /* Error */
if (BIO_write_filename(out, "filename.txt") <= 0)
    /* Error */
BIO_printf(out, "Hello World\n");
BIO_free(out);
```

**BUGS**

**BIO\_reset()** and **BIO\_seek()** are implemented using **fseek()** on the underlying stream. The return value for **fseek()** is 0 for success or -1 if an error occurred this differs from other types of BIO which will typically return 1 for success and a non positive value if an error occurred.

**SEE ALSO**

**BIO\_seek(3)**, **BIO\_tell(3)**, **BIO\_reset(3)**, **BIO\_flush(3)**, **BIO\_read\_ex(3)**, **BIO\_write\_ex(3)**, **BIO\_puts(3)**, **BIO\_gets(3)**, **BIO\_printf(3)**, **BIO\_set\_close(3)**, **BIO\_get\_close(3)**

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