Rocky Enterprise Linux 9.2 Manual Pages on command 'BIO_get_callback_ex.3ossl'

$ man BIO_get_callback_ex.3ossl

BIO_SET_CALLBACK(3ossl) OpenSSL BIO_SET_CALLBACK(3ossl)

NAME

BIO_set_callback_ex, BIO_get_callback_ex, BIO_set_callback,

BIO_get_callback, BIO_set_callback_arg, BIO_get_callback_arg,

BIO_debug_callback, BIO_debug_callback_ex, BIO_callback_fn_ex,

BIO_callback_fn - BIO callback functions

SYNOPSIS

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

typedef long (*BIO_callback_fn_ex)(BIO *b, int oper, const char *argp,
                                   size_t len, int argi,
                                   long argl, int ret, size_t *processed);

void BIO_set_callback_ex(BIO *b, BIO_callback_fn_ex callback);
BIO_callback_fn_ex BIO_get_callback_ex(const BIO *b);
```

```
void BIO_set_callback_arg(BIO *b, char *arg);
char *BIO_get_callback_arg(const BIO *b);

long BIO_debug_callback_ex(BIO *bio, int oper, const char *argp, size_t len,
                           int argi, long argl, int ret, size_t *processed);
```

The following functions have been deprecated since OpenSSL 3.0, and can be hidden entirely by defining OPENSSL_API_COMPAT with a suitable version value, see openssl_user_macros(7):

```
typedef long (*BIO_callback_fn)(BIO *b, int oper, const char *argp, int argi,
                                long argl, long ret);
void BIO_set_callback(BIO *b, BIO_callback_fn cb);
BIO_callback_fn BIO_get_callback(const BIO *b);
long BIO_debug_callback(BIO *bio, int cmd, const char *argp, int argi,
                        long argl, long ret);
```

DESCRIPTION

BIO_set_callback_ex() and BIO_get_callback_ex() set and retrieve the BIO callback. The callback is called during most high-level BIO operations. It can be used for debugging purposes to trace operations on a BIO or to modify its operation.

BIO_set_callback() and BIO_get_callback() set and retrieve the old format BIO callback. New code should not use these functions, but they are retained for backwards compatibility. Any callback set via BIO_set_callback_ex() will get called in preference to any set by BIO_set_callback().

BIO_set_callback_arg() and BIO_get_callback_arg() are macros which can be used to set and retrieve an argument for use in the callback.

BIO_debug_callback_ex() is a standard debugging callback which prints

out information relating to each BIO operation. If the callback argument is set it is interpreted as a BIO to send the information to, otherwise stderr is used. The BIO_debug_callback() function is the deprecated version of the same callback for use with the old callback format BIO_set_callback() function.

BIO_callback_fn_ex is the type of the callback function and BIO_callback_fn is the type of the old format callback function. The meaning of each argument is described below:

b The BIO the callback is attached to is passed in b.

oper

oper is set to the operation being performed. For some operations the callback is called twice, once before and once after the actual operation, the latter case has oper or'ed with BIO_CB_RETURN.

len The length of the data requested to be read or written. This is only useful if oper is BIO_CB_READ, BIO_CB_WRITE or BIO_CB_GETS.

argp argi argl

The meaning of the arguments argp, argi and argl depends on the value of oper, that is the operation being performed.

processed

processed is a pointer to a location which will be updated with the amount of data that was actually read or written. Only used for BIO_CB_READ, BIO_CB_WRITE, BIO_CB_GETS and BIO_CB_PUTS.

ret ret is the return value that would be returned to the application if no callback were present. The actual value returned is the return value of the callback itself. In the case of callbacks called before the actual BIO operation 1 is placed in ret, if the

return value is not positive it will be immediately returned to the application and the BIO operation will not be performed.

The callback should normally simply return ret when it has finished processing, unless it specifically wishes to modify the value returned to the application.

CALLBACK OPERATIONS

In the notes below, callback defers to the actual callback function that is called.

BIO_free(b)

callback_ex(b, BIO_CB_FREE, NULL, 0, 0, 0L, 1L, NULL)

or

callback(b, BIO_CB_FREE, NULL, 0L, 0L, 1L)

is called before the free operation.

BIO_read_ex(b, data, dlen, readbytes)

callback_ex(b, BIO_CB_READ, data, dlen, 0, 0L, 1L, NULL)

or

callback(b, BIO_CB_READ, data, dlen, 0L, 1L)

is called before the read and

callback_ex(b, BIO_CB_READ | BIO_CB_RETURN, data, dlen, 0, 0L, retvalue, &readbytes)

or

callback(b, BIO_CB_READ|BIO_CB_RETURN, data, dlen, 0L, retvalue)

after.

BIO_write(b, data, dlen, written)

callback_ex(b, BIO_CB_WRITE, data, dlen, 0, 0L, 1L, NULL)

or

callback(b, BIO_CB_WRITE, datat, dlen, 0L, 1L)

is called before the write and

callback_ex(b, BIO_CB_WRITE | BIO_CB_RETURN, data, dlen, 0, 0L, retvalue,
&written)

or

callback(b, BIO_CB_WRITE|BIO_CB_RETURN, data, dlen, 0L, retvalue)

after.

BIO_gets(b, buf, size)

callback_ex(b, BIO_CB_GETS, buf, size, 0, 0L, 1, NULL, NULL)

or

callback(b, BIO_CB_GETS, buf, size, 0L, 1L)

is called before the operation and

callback_ex(b, BIO_CB_GETS | BIO_CB_RETURN, buf, size, 0, 0L, retvalue,

&readbytes)

or

callback(b, BIO_CB_GETS|BIO_CB_RETURN, buf, size, 0L, retvalue)

after.

BIO_puts(b, buf)

callback_ex(b, BIO_CB_PUTS, buf, 0, 0, 0L, 1L, NULL);

or

callback(b, BIO_CB_PUTS, buf, 0, 0L, 1L)

is called before the operation and

callback_ex(b, BIO_CB_PUTS | BIO_CB_RETURN, buf, 0, 0, 0L, retvalue, &written)

or

callback(b, BIO_CB_PUTS|BIO_CB_RETURN, buf, 0, 0L, retvalue)

after.

BIO_ctrl(BIO *b, int cmd, long larg, void *parg)

callback_ex(b, BIO_CB_CTRL, parg, 0, cmd, larg, 1L, NULL)

or

callback(b, BIO_CB_CTRL, parg, cmd, larg, 1L)

is called before the call and

callback_ex(b, BIO_CB_CTRL | BIO_CB_RETURN, parg, 0, cmd, larg, ret, NULL)

or

callback(b, BIO_CB_CTRL|BIO_CB_RETURN, parg, cmd, larg, ret)

after.

Note: cmd == BIO_CTRL_SET_CALLBACK is special, because parg is not the argument of type BIO_info_cb itself. In this case parg is a pointer to the actual call parameter, see BIO_callback_ctrl.

RETURN VALUES

BIO_get_callback_ex() and BIO_get_callback() return the callback function previously set by a call to BIO_set_callback_ex() and BIO_set_callback() respectively.

BIO_get_callback_arg() returns a char pointer to the value previously set via a call to BIO_set_callback_arg().

BIO_debug_callback() returns 1 or ret if it's called after specific BIO operations.

EXAMPLES

The BIO_debug_callback_ex() function is an example, its source is in crypto/bio/bio_cb.c

HISTORY

The BIO_debug_callback_ex() function was added in OpenSSL 3.0.

BIO_set_callback(), BIO_get_callback(), and BIO_debug_callback() were deprecated in OpenSSL 3.0. Use the non-deprecated _ex functions

instead.

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