

**NAME**

BIO\_socket, BIO\_bind, BIO\_connect, BIO\_listen, BIO\_accept\_ex, BIO\_closesocket - BIO socket communication setup routines

**SYNOPSIS**

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

```
int BIO_socket(int domain, int socktype, int protocol, int options);
int BIO_bind(int sock, const BIO_ADDR *addr, int options);
int BIO_connect(int sock, const BIO_ADDR *addr, int options);
int BIO_listen(int sock, const BIO_ADDR *addr, int options);
int BIO_accept_ex(int accept_sock, BIO_ADDR *peer, int options);
int BIO_closesocket(int sock);
```

**DESCRIPTION**

**BIO\_socket()** creates a socket in the domain **domain**, of type **socktype** and **protocol**. Socket **options** are currently unused, but is present for future use.

**BIO\_bind()** binds the source address and service to a socket and may be useful before calling **BIO\_connect()**. The options may include **BIO\_SOCKET\_REUSEADDR**, which is described in "FLAGS" below.

**BIO\_connect()** connects **sock** to the address and service given by **addr**. Connection **options** may be zero or any combination of **BIO\_SOCKET\_KEEPALIVE**, **BIO\_SOCKET\_NONBLOCK** and **BIO\_SOCKET\_NODELAY**. The flags are described in "FLAGS" below.

**BIO\_listen()** has **sock** start listening on the address and service given by **addr**. Connection **options** may be zero or any combination of **BIO\_SOCKET\_KEEPALIVE**, **BIO\_SOCKET\_NONBLOCK**, **BIO\_SOCKET\_NODELAY**, **BIO\_SOCKET\_REUSEADDR** and **BIO\_SOCKET\_V6\_ONLY**. The flags are described in "FLAGS" below.

**BIO\_accept\_ex()** waits for an incoming connections on the given socket **accept\_sock**. When it gets a connection, the address and port of the peer gets stored in **peer** if that one is non-NULL. Accept **options** may be zero or **BIO\_SOCKET\_NONBLOCK**, and is applied on the accepted socket. The flags are described in "FLAGS" below.

**BIO\_closesocket()** closes **sock**.

**FLAGS**

BIO\_SOCKET\_KEEPALIVE

Enables regular sending of keep-alive messages.

#### BIO\_SOCKET\_NONBLOCK

Sets the socket to nonblocking mode.

#### BIO\_SOCKET\_NODELAY

Corresponds to **TCP\_NODELAY**, and disables the Nagle algorithm. With this set, any data will be sent as soon as possible instead of being buffered until there's enough for the socket to send out in one go.

#### BIO\_SOCKET\_REUSEADDR

Try to reuse the address and port combination for a recently closed port.

#### BIO\_SOCKET\_V6\_ONLY

When creating an IPv6 socket, make it only listen for IPv6 addresses and not IPv4 addresses mapped to IPv6.

These flags are bit flags, so they are to be combined with the "|" operator, for example:

```
BIO_connect(sock, addr, BIO_SOCKET_KEEPAIVE | BIO_SOCKET_NONBLOCK);
```

### RETURN VALUES

**BIO\_socket()** returns the socket number on success or **INVALID\_SOCKET** (-1) on error. When an error has occurred, the OpenSSL error stack will hold the error data and `errno` has the system error.

**BIO\_bind()**, **BIO\_connect()** and **BIO\_listen()** return 1 on success or 0 on error. When an error has occurred, the OpenSSL error stack will hold the error data and `errno` has the system error.

**BIO\_accept\_ex()** returns the accepted socket on success or **INVALID\_SOCKET** (-1) on error. When an error has occurred, the OpenSSL error stack will hold the error data and `errno` has the system error.

### SEE ALSO

**BIO\_ADDR(3)**

### HISTORY

**BIO\_gethostname()**, **BIO\_get\_port()**, **BIO\_get\_host\_ip()**, **BIO\_get\_accept\_socket()** and **BIO\_accept()** were deprecated in OpenSSL 1.1.0. Use the functions described above instead.

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