NAME

SSL_set_bio, SSL_set0_rbio, SSL_set0_wbio - connect the SSL object with a BIO

SYNOPSIS

#include <openssl/ssl.h>

void SSL_set_bio(SSL *ssl, BIO *rbio, BIO *wbio);
void SSL_set0_rbio(SSL *s, BIO *rbio);
void SSL_set0_wbio(SSL *s, BIO *wbio);

DESCRIPTION

SSL_set0_rbio() connects the BIO **rbio** for the read operations of the **ssl** object. The SSL engine inherits the behaviour of **rbio**. If the BIO is nonblocking then the **ssl** object will also have nonblocking behaviour. This function transfers ownership of **rbio** to **ssl**. It will be automatically freed using **BIO_free_all**(3) when the **ssl** is freed. On calling this function, any existing **rbio** that was previously set will also be freed via a call to **BIO_free_all**(3) (this includes the case where the **rbio** is set to the same value as previously).

SSL_set0_wbio() works in the same as **SSL_set0_rbio()** except that it connects the BIO **wbio** for the write operations of the **ssl** object. Note that if the rbio and wbio are the same then **SSL_set0_rbio()** and **SSL_set0_wbio()** each take ownership of one reference. Therefore, it may be necessary to increment the number of references available using **BIO_up_ref**(3) before calling the set0 functions.

SSL_set_bio() is similar to **SSL_set0_rbio()** and **SSL_set0_wbio()** except that it connects both the **rbio** and the **wbio** at the same time, and transfers the ownership of **rbio** and **wbio** to **ssl** according to the following set of rules:

⊕ If neither the **rbio** or **wbio** have changed from their previous values then nothing is done.

⊕ If the **rbio** and **wbio** parameters are different and both are different to their previously set values then one reference is consumed for the rbio and one reference is consumed for the wbio.

⊕ If the **rbio** and **wbio** parameters are the same and the **rbio** is not the same as the previously set value then one reference is consumed.

⊕ If the **rbio** and **wbio** parameters are the same and the **rbio** is the same as the previously set value, then no additional references are consumed.

⊕ If the **rbio** and **wbio** parameters are different and the **rbio** is the same as the previously set value then one reference is consumed for the **wbio** and no references are consumed for the **rbio**.

⊕ If the **rbio** and **wbio** parameters are different and the **wbio** is the same as the previously set value and the old **rbio** and **wbio** values were the same as each other then one reference is consumed for the **rbio** and no references are consumed for the **wbio**.

⊕ If the **rbio** and **wbio** parameters are different and the **wbio** is the same as the previously set value and the old **rbio** and **wbio** values were different to each other, then one reference is consumed for the **rbio** and one reference is consumed for the **wbio**.

Because of this complexity, this function should be avoided; use **SSL_set0_rbio()** and **SSL_set0_wbio()** instead.

RETURN VALUES

    SSL_set_bio(), **SSL_set0_rbio()** and **SSL_set0_wbio()** cannot fail.

SEE ALSO

    SSL_get_rbio(3), **SSL_connect**(3), **SSL_accept**(3), **SSL_shutdown**(3), **ssl**(7), **bio**(7)

HISTORY

    SSL_set0_rbio() and **SSL_set0_wbio()** were added in OpenSSL 1.1.0.

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