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.

COPYRIGHT

    Copyright 2000-2021 The OpenSSL Project Authors. All Rights Reserved.

    Licensed under the Apache License 2.0 (the "License"). You may not use this file except in compliance with the License. You can obtain a copy in the file LICENSE in the source distribution or at <https://www.openssl.org/source/license.html>.